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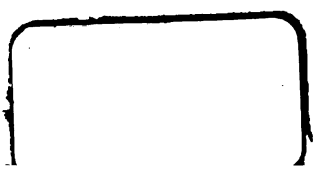

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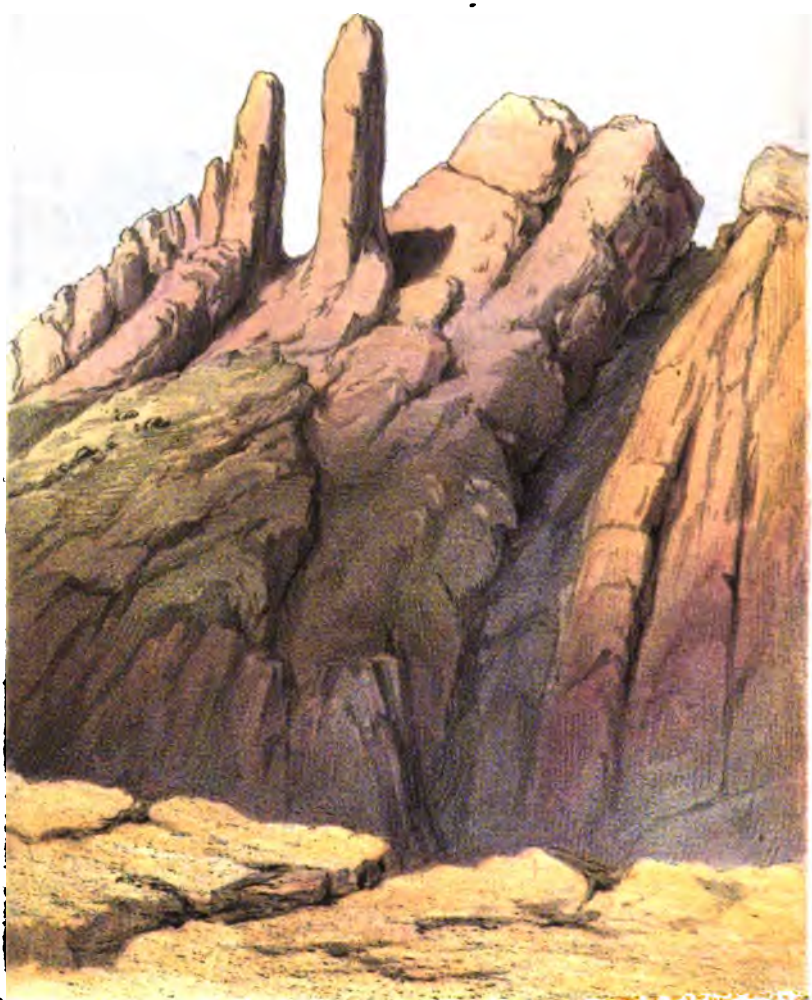

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(6000 FEET HIGH.)

THE LAND OF MIDIAN

(REVISITED).

BY

RICHARD F. BURTON

THE PILGRIMAGE TO AL-MADINAH AND MECCAH

&c. &c. &c.

IN TWO VOLS.

VOL. II.

LONDON:

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THE LAND OF MIDIAN

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CHAPTER XI.

THE UNKNOWN LANDS SOUTH OF THE HISMÁ—RUINS OF SHUWÁK AND SHAGHAB.

We have now left the region explored by Europeans; and our line to the south and the south-east will lie over ground wholly new. In front of us the land is no longer *Arz Madyan:* we are entering South Midian, which will extend to El-Hejáz. As the march might last longer than had been expected, I ordered fresh supplies from El-Muwaylah to meet us in the interior *viâ* Zibá. A very small boy acted dromedary-man; and on the next day he reached the fort, distant some thirty-five and a half direct geographical miles eastward with a trifling of northing.

We left the Jayb el-Khuraytah on a delicious

morning (6.15 a.m., February 26th), startling the gazelles and the hares from their breakfast graze. The former showed in troops of six; and the latter were still breeding, as frequent captures of the long-eared young proved. The track lay down the Wady Dahal and other influents of the great Wady Sa'lúwwah, a main feeder of the Dámah. We made a considerable *détour* between south-south-east and south-east to avoid the rocks and stones discharged by the valleys of the Shafah range on our left. To the right rose the Jibál el-Tihámah, over whose nearer brown heights appeared the pale blue peaks of Jebel Shárr and its southern neighbour, Jebel Sa'lúwwah.

At nine a.m. we turned abruptly eastward up the Wady el-Sulaysalah, whose head falls sharply from the Shafah range. The surface is still Hismá ground, red sand with blocks of ruddy grit, washed down from the plateau on the left; and, according to Furayj, it forms the south-western limit of *the* Harrah. The valley is honeycombed into man-traps by rats and lizards, causing many a tumble, and notably developing the mulish instinct. We then crossed a rough and rocky divide, *Arabicè* a *Majrá*, or, as the Bedawin here pronounce it, a "Magráh,"* which takes its name from the tormented Ruways ridge on the right. After a hot,

* The word is explained in my "Itineraries," part ii. sect. 3.

unlively march of four hours (= eleven miles), on mules worn out by want of water, we dismounted at a queer isolated lump on the left of the track. This *Jebel el-Murayt'bah* ("of the Little Step") is lumpy grey granite of the coarsest elements, whose false strata, tilted up till they have become quasi-vertical, and worn down to pillars and drums, crown the crest like gigantic columnar crystallizations. We shall see the same freak of nature far more grandly developed into the "Pins" of the Shárr. It has evidently upraised the trap, of which large and small blocks are here and there imbedded in it. The granite is cut in its turn by long horizontal dykes of the hardest quadrangular basalt, occasionally pud ding'd with banded lumps of red jasper and oxydulated iron: from afar they look like water-lines, and in places they form walls, regular as if built. The rounded forms result from the granites flaking off in curved laminæ, like onion-coats. Want of homogeneity in the texture causes the granite to degrade into caves and holes: the huge blocks which have fallen from the upper heights often show unexpected hollows in the under and lower sides. Above the water we found an immense natural dolmen, under which apparently the Bedawin take shelter. After *El-Murayt'bah* the regular granitic sequence disappears, nor will it again be visible till we reach Shaghab (March 2nd).

About noon we remounted and rounded the south of the block, disturbing by vain shots two fine black eagles. I had reckoned upon the "Water of El-Murayt'bah," in order to make an exceptional march after so many days of deadly slow going. But the cry arose that the rain-puddle was dry. We had not brought a sufficient supply with us, and twenty-two miles to and from the Wady Dahal was a long way for camels, to say nothing of their owners and the danger of prowling Ma'ázah. In front water lay still farther off, according to the guides, who, it will be seen, notably deceived us. So I ordered the camp to be pitched, after reconnoitring the locale of the water; and we all proceeded to work, with a detachment of soldiers and quarrymen. It was not a rain-puddle, but a spring rising slowly in the sand, which had filled up a fissure in the granite about four feet broad; of these crevices three were disposed parallel to one another, and at different heights. They wanted only clearing out; the produce was abundant, and though slightly flavoured with iron and sulphur, it was drinkable. The thirsty mules amused us not a little: they smelt water at once; hobbled as they were, all hopped like kangaroos over the plain, and with long ears well to the fore, they stood superintending the operation till it was their turn to be happy.

Our evening at the foot of El-Ruways was

cheered, despite the flies, the earwigs, and the biting Ba'ûzah beetle, which here first put in an appearance, by the weird and fascinating aspect of the southern Hismá-wall, standing opposite to us, and distant about a mile from the dull drab-coloured basin, El-Majrá. Based upon mighty massive foundations of brown and green trap, the undulating junction being perfectly defined by a horizontal white line, the capping of sandstone rises regular as if laid in courses, with a huge rampart falling perpendicular upon the natural slope of its glacis. This bounding curtain is called the *Taur el-Shafah*, the "inaccessible part of the Lip-range." Further eastward the continuity of the coping has been broken and weathered into the most remarkable castellations: you pass mile after mile of cathedrals, domes, spires, minarets, and pinnacles; of fortresses, dungeons, bulwarks, walls, and towers; of platforms, buttresses, and flying buttresses. These *Girágir* (Jirájir), as the Bedawin call them, change shape at every new point of view, and the eye never wearies of their infinite variety. Nor are the tints less remarkable than the forms. When the light of day warms them with its gorgeous glaze, the buildings wear the brightest hues of red concrete, like a certain house near Prince's Gate, set off by lambent lights of lively pink and balas-ruby, and by shades of deep transparent purple, while here and there a dwarf dome or a

tumulus gleams sparkling white in the hot sun-ray. The even-glow is indescribably lovely, and all the lovelier because unlasting: the moment the red disc disappears, the glorious rosy smile fades away, leaving the pale grey ghosts of their former selves to gloom against the gloaming of the eastern sky. I could not persuade M. Lacaze to transfer this vividity of colour to canvas: he had the artist's normal excuse, "Who would believe it?"

The next morning saw the Expedition afoot at six a.m., determined to make up for a half by the whole day's work so long intended. The track struck eastward, and issued from the dull hollow, Majrá el-Ruways, by a made road about a mile and a half long, a cornice cut in the stony flanks of a hill whose head projected southwards into the broad *Wady Hujayl* ("the Little Partridge"). This line seems to drain inland; presently it bends round by the east and feeds the Wady Dámah. Rain must lately have fallen, for the earth is "purfled flowers," pink, white, and yellow. The latter is the tint prevailing in Midian, often suggesting the careless European wheat-field, in which "shillock" or wild mustard rears its gamboge head above the green. Midian wants not only the charming oleander and the rugged terebinth, typical of the Desert; but also the "blood of Adonis," the lovely anemone which lights up the Syrian landscape like the fisherman's

scarlet cap in a sea-piece. This stage introduced us to the Hargul (Harjal, *Rhazya stricta*), whose perfume filled the valley with the clean smell of the henna-bloom, the Eastern privet—Mr. Clarke said "wallflowers." Our mules ate it greedily, whilst the country animals, they say, refuse it: the flowers, dried and pounded, cure by fumigation "pains in the bones." Here also we saw for the first time the quaint distaff-shape of the purple red Masrúr (*Cynomorium coccineum*, Linn.), from which the Bedawi "cook bread." It is eaten simply peeled and sun-dried, when it has a vegetable taste slightly astringent as if by tannin, something between a potato and a turnip; or its rudely pounded flour is made into balls with soured milk. This styptic, I am told by Mr. R. B. Sharpe, of the British Museum, was long supposed to be peculiar to Malta; hence its pre-Linnæan name (*Fungus Melitensis*).* Now it is known to occur through the Mediterranean to India. Let me here warn future collectors of botany in Midian that throughout the land the vegetable kingdom follows the rule of the mineral: every march shows something new; and he who neglects to gather specimens, especially of the smaller flowers, in one valley, will perhaps find none of them in those adjoining.

A denser row of trees lower down the Wady

* See Appendix IV. "Botanical Notes."

Hujayl led to the water of Amdán (Mídán ?), about an hour and a half from our last nighting-place ; yesterday it had been reported six hours distant. High towering on our left (north) rose three huge buttresses of the *Girágir*. In front stood a marvellous background of domes and arches, cones and ninepins, all decayed Hismá, blurred and broken by the morning mist, which could hardly be called a fog; and forming a perspective of a dozen distances. Now they curve from north-east to south-west in a kind of scorpion's tail, with detached vertebræ torn and wasted by the adjacent plutonic outcrops ; and looking from the west they suggest blood-red islets rising above the great gloomy waves of trap and porphyry. This projection will remain in sight until we reach Shuwák ; and in places we shall see it backed by the basalts and lavas of the straight-lined *Harrah*.

Presently turning sharp to the right (south-east), we struck across a second divide, far more shallow than the first ; and fell into the northern basin of the great Dámah valley, also known as El-Rahabah, "the Open ; "—the *Rehoboth* ("spaces") of the Hebrews. Like yesterday's, the loose red sand is Hismá ; and it is also scattered with Harrah lava. After a four hours' ride we halted to enable the caravan to come up. Our Shaykhs were bent upon making twelve miles the average day's work ; and their "little

game" was now to delay as much as possible. Here we again found flocks of sheep and goats tended by young girls, who ran away like ostriches, and by old women who did not: on the contrary, Sycorax enjoyed asking the news and wrangling over a kid. The camels throughout this country seem to be always under the charge of men or boys.

Here began our study of the great Wady Dámah, whose fame as an Arabian Arcadia extends far and wide, and whose possession has caused many a bloody battle. We now see it at its best, in early spring morning, when

> "The landscape smiles
> Calm in the sun, and silent are the hills
> And valleys, and the blue serene of air."

This notable feature is a *Haddúdah* ("frontier-divider"), which in ancient days separated the 'Ukbíyyah ("Ukbah-land") to the north from the Balawíyyah ("Baliyy-land") south. The latter still claim it as their northern limit; but the intrusive Egypto-Arabs have pushed their way far beyond this bourne. Its present Huwayti owners, the Sulaymiyyín, the Sulaymát, the Jeráfín, and other tribes, are a less turbulent race than the northerns because they are safe from the bandit Ma'ázah: they are more easily managed, and they do not meet a fair offer with the eternal *Yaftah 'Allah*—"Allah opens."*

* "Opens," *i.e.* the door for a higher price: it is the usual formula of refusing to sell.

The head of the Dámah, a great bay in the Hismá-wall to the east, is now in sight of us; and we shall pass its mouth, which debouches into the sea below Zibá. This tract is equally abundant in herds (camels), flocks, and vegetation: in places a thin forest gathers, and the tree-clumps now form a feature in the scenery. The sole, a broad expanse of loose red arenaceous matter, the washings of the plateau, is fearfully burrowed and honeycombed; it is also subject, like its sister the Sadr, to the frequent assault of "devils," or sand-pillars. That it is plentifully supplied with water, we learn from the presence of birds. The cries of the *caravane*, the "knock-kneed" plover of Egypt, yellow-beaked and black-eyed, resounded in the more barren belts. A lovely little sun-bird (*Nectarinia oseæ?*), which the Frenchmen of course called *colibri*, with ravishing reflections of green and gold, flashed like a gem thrown from shrub to shrub: this *oiseau mouche* is found scattered throughout Midian; we saw it even about El-Muwaylah, but I had unfortunately twice forgotten dust-shot. The Egyptian Rakham (*percnopter*), yellow with black-tipped wings; a carrion-eater, now so rare, and the common brown kite, still so common near civilized Cairo, soared in the sky; while the larger vultures, perching upon the rock-ridges, suggested Bedawi sentinels. The ravens, here as elsewhere, are a plague: flights

of them occupy favourite places, and they prey upon the young lambs, hares, and maimed birds.

We advanced another five miles, and crossed to the southern side of the actual torrent-bed, whose banks, strewed with a quantity of dead flood-wood entangling the trees, and whose flaky clays, cracked to the shape of slabs and often curling into tubes of natural pottery, show that at times the Hismá must discharge furious torrents. We camped close to the Dámah at the foot of the Jebel el-Balawi; the water, known as *Máyat el-Jebayl* ("of the Hillock"), lay ahead in a low rocky snout: it was represented as being distant a full hour, and the mules did not return from it till three had passed; but thirty minutes would have been nearer the truth. The Nile-drinkers turned up their fastidious noses at the supply, but Lieutenant Amir, who had graduated in the rough campaigning-school of the Súdán, pronounced it "regular."

The nighting-place on the Dámah was as pretty and picturesque as the Majrá was tame and uncouth. While the west was amber clear, long stripes of purpling, crimson, flaming cloud, to the south and the east, set off the castled crags disposed in a semicircle round the Wady-head; and the "buildings" appeared art-like enough to be haunted ground, the domain of the *Fata Morgana*, a glimpse of the City of Brass built by Shaddád, son of 'Ad. When the stars

began to glitter sharp and clear, our men fell to singing and dancing; and the boy Husayn Ganínah again distinguished himself by his superior ribaldry. Our work was more repectable and prosaic, firing a mule with a swollen back.

Within a mile or so of us stood some Bedawi tents, which we had passed on the march: they were deserted by the men, here Sulaymát, who drive their camels to the wilds sometimes for a week at a time. An old wife who brought us a goat for sale, and who begged that Husayn, the Básh-Buzúk, might pass the night with her, in order to shoot an especially objectionable wolf, had a long tale to tell of neighbouring ruins. She also reported that near the same place there is a well with steps, into which the Arabs had descended some seven fathoms; presently they found houses occupying the galleries at the bottom, and fled in terror.

Lieutenant Amir was sent to sketch and survey the site next morning; and he was lucky enough to be guided by one Sa'id bin Zayfullah, the Sulaymi, whose prime dated from the palmy days of the great Mohammed Ali Pasha. He acknowledged as his friends the grandfather, and even the father, of our guide Furayj; but the latter he ignored, looking upon him as a mere *Walad* ("lad"). Moreover, he remembered the birth of Shaykh Mohammed 'Afnán, chief of the Baliyy, which took place when he him-

self had already become a hunter of the gazelle.* According to him, the remains are still known as the *Dár* ("house") or *Diyár* ("houses") *El-Nasárá*— "of the Nazarenes," that is, of the Nabathæans. The former term is retained here, as in Sinai, by popular tradition; and the latter is clean forgotten throughout Midian.

Riding down the Wady Dámah to the south-west, Lieutenant Amir came upon a spring in a stone-revetted well near the left bank: this Ayn el-Bada' is not to be confounded with the Badí' water, or with the Badá plain, both of which we shall presently visit. A strew of broken quartz around it showed the *atelier*, and specimens of scattered fragments, glass and pottery, were gathered. The settlement-ruins, which the guide called El-

* Chap. XVI.

† The *Saturday Review*, in a courteous notice of my first volume (May 25, 1878), has the following remarks:—"The Arabs talk of some (?) Nazarenes, and a 'King of the Franks,' having built the stone huts and the tombs in a neighbouring cemetery ('Aynúnah). But there can be no local tradition worth repeating in this instance." Here we differ completely; and those will agree with me who know how immutable and, in certain cases, imperishable Arab tradition is. The reviewer, true, speaks of North Midian, where all the tribes, except the Beni 'Ukbah, are new. Yet legend can survive the destruction and disappearance of a race: witness the folk-traditions of the North-Eastern Italians and the adjacent Slavs. Here, however, in South Midian we have an ancient race, the Baliyy. And what strengthens the Christian legend is that it is known to man, woman, and child throughout the length and breadth of the land.

Kantarah, lie further down upon a southern influent of the main line: they are divided into two blocks, one longer than the other. Lieutenant Amir made a careful plan of the remains, and then pushed forward to Shuwák by the direct track, westward of that taken by the caravan. He arrived in camp, none the worse for a well-developed "cropper;" his dromedary had put its foot in a hole, and had fallen with a suddenness generally unknown to the cameline race.

By way of geographical exercitation, we had all drawn our several plans, showing, after Arab statement, the lay of Shaghab and Shuwák, the two ruins which we were about to visit. Nothing could be more ridiculous when the sketch-maps came to be compared. This was owing to the route following the three sides of a long parallelogram; whilst the fourth is based upon the Wady Dámah, causing considerable complication. And, the *excursus* ended, all were convinced that we had made much southing, when our furthest point was not more than five miles south of Zibá (north lat. 27° 20′).

We quitted the great valley at six a.m. (February 28th), and struck up the Wady Shuwák, an influent that runs northwards to the Dámah's left bank. On the stony ground above the right side of this Fiumara lay six circles of stones, disposed in a line from north-east to south-west: they may have been ruins

of *Hufrah* ("water-pits"). As we rose the Nullah surface was pied with white flowers, the early growth which here takes the place of primroses. I had some difficulty in persuading our good friend Furayj, who had not seen the country for fifteen years, to engage as guide one of the many Bedawin camel-herds: his course seemed to serpentine like that of an animal grazing—he said it was intended to show the least stony road—and, when he pointed with the wave of the maimed right hand, he described an arc of some 90°. The Sulaymi lad caught the nearest camel, climbed its sides as you would a tree, and, when the animal set off at a lumbering gallop, pressed the soles of his feet to the ribs, with exactly the action of a Simiad; clinging the while, like grim Death, to the hairy hump.

After some six miles we attempted a short cut, a gorge that debouched on the left bank of the Shuwák valley. It showed at once a complete change of formation: the sides were painted with clays of variegated colours, crystallized lime and porphyritic conglomerates, tinted mauve-purple as if by manganese. Further on, the path, striking over broken divides and long tracts of stony ground, became rough riding: it was bordered by the usual monotonous, melancholy hills of reddish and greenish trap, whose slaty and schist-like edges in places stood upright. On the summit of the last *Col* appeared

the ruins of an outwork, a large square and a central heap of boulder-stones. Straight in front rose the block that backs our destination, the Jebel el-Sáni', or "Mountain of the Maker," the artificer *par excellence*, that is, the blacksmith: it is so called from a legendary shoer of horses and mules, who lived there possibly in the days before Sultán Selim. It is remarkable for its twin peaks, sharp-topped blocks, the higher to the east, and called by the Bedawin *Naghar* and *Nughayr*. The guides spoke of a furnace near the summit of these remarkable cones; excellent landmarks which we shall keep in sight during several marches. At length, after ten miles of slow work, we saw before us, stretched as upon a map, the broad valley with its pink sands; the Daum-trees, the huge 'Ushr or "Apple of Sodom," the fan-palm bush, and the large old Jujubes—here an invariable sign of former civilization—which informed us that there lay fair Shuwák.

The dull gorge introduced us to what was then a novelty in Midian; but we afterwards found it upon the cold heights of the Shárr, where it supplied us with many a dainty dish. This was the Shinnár * (*caccabis*), a partridge as large as a pheasant, and flavoured exactly like the emigrant from Phasis.

* In Sinai "Shinnár" is also applied to a partridge, but I am unable to distinguish the species—caccabis, Desert partridge, (*Ammoperdix heyi*, the Arab Hajl), or the black partridge (*Francolinus vulgaris*).

The coat, the *clock! clock!* and the nimble running over the rocks, ever the favourite haunt, denote the "perdix." The head is black, as in the *C. melanocephala* of Abyssinia, and the legs and feet are red like the smaller "Greek" caccabis that inhabits the Hismá; the male birds have no spurs, and they are but little larger than their mates. There seems to be no difficulty in keeping them; we bought a hen and chicks caged at El-Wijh, but whether they lived or not I neglected to note. Here, too, we learned the reason why the falcons and the hawks (*Falco milvus, F. gentilis*, etc.) are so fierce and so well-fed. The tyrant of the air raises the partridge or the quail by feinting a swoop, and, as it hurries away screaming aloud, follows it leisurely at a certain distance. Finally, when the quarry reaches the place intended —at least, the design so appears—the falcon stoops and ends the chase. The other birds were ring-doves, turtles, and the little "butcher" impaling, gaily as a "gallant Turk," its live victim upon a long thorn.

Shuwák, which lies in about north lat. 27° 15′, can be no other than the Σόακα placed by Ptolemy (vi. 7) in north lat. 26° 15′; and, if so, we must add one degree to his latitudes, which are sixty miles too low.* According to Sprenger ("Alt. Geog.," p. 25), Σόακα and Βαδαΐς do not fit into any of the Alex-

* Chap. IX. has already noticed Ptolemy's short measure.

andrian's routes; and were connected only with their ports Rhaunathos (M'jirmah ?) and Phœnicon Vicus (Zibá ?). But both these cities were large and important centres, both of agriculture and of mining industry, forming crucial stations on the great Nabathæan highway, the overland between Leukè Kóme and Petra. The line was kept up by the Moslems until Sultán Selim's superseded it; and hence the modern look of the remains which at first astonished us so much. The tradition of the Hajj-passage is distinctly preserved by the Bedawin; and I have little doubt that metal has been worked here as lately, perhaps, as the end of the last century. But by whom, again, deponent ventures not to say, even to guess.

The site of Shuwák is a long island in the broad sandy Wady of the same name, which, as has been remarked, feeds the Dámah. Its *thalweg* has shifted again and again: the main line now hugs the southern or left bank, under the slopes and folds of the Jebel el-Sáni'; whilst a smaller branch, on the northern side, is subtended by the stony divide last crossed. At the city the lay of the valley is from north-east to south-west, and the altitude is about seventeen hundred feet (aner. 28·28). The head still shows the castellations of the Hismá. Looking down-stream, beyond the tree-dotted bed and the low dark hills that divide this basin from

the adjoining Wady to the south, we see the tall grey tops of the Jebel Zigláb (Zijláb) and of the *Shahbá-Gámirah*—the "ashen-coloured (Peak) of Gámirah"—the latter being the name of a valley. Both look white by the side of the dark red and green rocks; and we shall presently find that they mark the granite region lying south and seaward of the great trap formations. We were not sorry to see it again—our eyes were weary of the gloomy plutonic curtains on either side.

At Shuwák we allowed the camels a day of rest, whilst we planned and sketched, dug into, and described the ruins. A difficulty about drinking-water somewhat delayed us. The modern wells, like those of the Haurán, are rudely revetted pits in a bald and shiny bit of clay-plain below the principal block of ruins: only one in the dozen holds water, and that has been made *Wahsh* ("foul") by the torrent sweeping into it heaps of the refuse and manure strewed around. The lower folds of the Sáni' block also supply rain-pools; but here, again, the Arabs and their camels had left their marks. The only drinkable water lies a very long mile down the southern (left) bank, above the old aqueduct, in a deep and narrow gorge of trap. The perennial spring, still trickling down the rocks, was dammed across, as remnants of cement show us, in more places than one. There are also signs of

cut basins, which the barrages above and below once divided into a series of tanks. Up the rough steps of the bed the camel-men drove their beasts; and the name of a Gujráti maker, printed upon a sack of Anglo-Indian canvas, had a curious effect among such Bedawi surroundings.

At last we sank a pit some five feet deep in a re-entering angle of the northern or smaller branch; we lined it with stone down-stream, where the flow made the loose sand fall in, and we obtained an ample and excellent supply. Doubtless it was spoiled, as soon as our backs were turned, by the half-Fellah Jeráfín-Huwaytát, to whom the place belongs. The sea-breeze during the day was high and dust-laden, but we passed a cool delicious night upon the clean sweet sand, which does not stick or cling. At this altitude there is no fear of bugs and fleas—the only dread is Signor "Pediculus."

We will begin, with our surveyors, at the valley head, and note the ruins as we stroll down. This section, Shuwák proper, is nearly a mile and a half long, and could hardly have lodged less than twenty thousand souls. But that extent by no means represents the whole; our next march will prolong it along the valley for a total of at least four miles. The material is various—boulders of granite and syenite; squares of trap and porphyry; the red sandstones of the Hisma; the basalts of the Harrah; and the

rock found *in situ*, a brown and crumbling grit, modern, and still in process of agglutination. The heaps and piles which denote buildings are divided by mounds and tumuli of loose friable soil, white with salt,—miniatures of Babylon, Nineveh, and Troy. On either flanks of the river-holm the periodical torrents have done their worst, cutting up the once regular bank into a succession of clay buttresses. On the right side we find a large fort, half sliced away, but still showing the concrete flooring of a tower. About the centre of the length are the remnants of a round *Burj;* blocks of buildings, all levelled to the foundations, lie to the north-west, and on the west appear signs of a square. Perhaps the most interesting discovery is that of catacombs, proving a civilization analogous to Maghâir Shu'ayb, but ruder, because more distant from the centre. The "caves" are hollowed in a long reef of loose *breccia*, which, fronting eastward, forms the right bank of the smaller branch. They are now almost obliterated by being turned into sheep-folds; the roofs have fallen in, and only one preserves the traces of two loculi.

The arrangements touching fuel and water in this great metal-working establishment are on a large scale. The biggest of the *Afrán* ("furnaces") lies to the north-west, near the right bank of the valley: all are of the ordinary type, originally

some five or six feet high, to judge from the bases. They are built of fire-brick, and of the Hismá stone, which faces itself into a natural *latex*. We dug deep into several of them; but so careful had been the workmen, or perhaps those who afterwards ransacked these places, that not the smallest tear of metal remained: we found only ashes, pottery, and scoriæ, as usual black and green, the latter worked sub-aerially; many of them had projections like stalactite. Round the furnaces are strewed carbonate of lime, stained black with iron, like that of Sharmá; and a quantity of the chlorite-enamelled serpentine still used in the Brazil as a flux.

Quartz was absent, and we were at a loss to divine what stone had been worked. At last we observed near the catacombs sundry heaps of pinkish earth, evidently washed out; and our researches in the South Country afterwards suggested that this may have been the remains of the micaceous schist, whose containing quartz was so extensively worked at Umm el-Haráb. Moreover, a short study of Shaghab threw more light on the matter.

Water also had been stored up with prodigious labour. We could easily trace the lines of half a dozen aqueducts, mostly channelled with rough cement, overlying a fine concrete; some of them had grooved stones to divert the stream by means of lashers. The *Fisktyyah* or "tanks," as carefully built,

were of all sizes; and the wells, which appeared to be mediæval, were lined with stones cut in segments of circles: we shall see the same curve in Sultán Selim's work near Zibá. The greatest feat is an aqueduct which, sanded over in the upper part, subtends the left side of the valley. It is carefully but rudely built, and where it crosses a gully, the "horizontal arch" is formed of projecting stone tiers, without a sign of key. This *magnum opus* must date from the days when the southern part of the Wady was nearly what it is now.

About a mile and a quarter below our camp, the Wady, which broadens to a mile, shows on the left bank a wall measuring a thousand mètres long, apparently ending in a tank of 110 feet each way. Around it are ruined parallelograms of every size, which in ancient times may have been workshops connected with the buildings in the island higher up. The torrents have now washed away the continuation, if ever there was any; and, though the lower remnants are comparatively safe upon their high ledge, the holm is evidently fated to disappear.

I did not learn till too late that a single day's march southwards from the Wady Shuwák, along the old main line of traffic, leads to the Wady Nejd, upon whose upper course is the plain of Badá; and which, after assuming four different names, falls, as will be seen, into the sea about thirty-five miles north of El-Wijh.

We left Shuwák considerably posed, puzzled, and perplexed by what it had shown us. A little pottery had been picked up, but our diggings had not produced a coin or even a bit of glass. The evidences of immense labour are the more astonishing when compared with the utter absence of what we call civilization. The Greek and Latin inscriptions of the Hauranic cities declare their origin : these, absolutely unalphabetic, refuse a single hint concerning the mysterious race which here lived and worked, and worked so nobly. And, finally, who were the Moslems that succeeded them in a later day, when the Hajj-caravan, some three centuries and a half ago, ceased to march by this road ? How is it that the annalists say nothing of them ? that not a vestige of tradition remains concerning any race but the Nazarenes ?

From Shuwák to the Wady Dámaḥ there are two roads, a direct and an indirect; the latter passing by the ruins of Shaghab. The caravan begged hard to take the former, but was summarily refused. At six a.m. we rode down the Shuwák valley, again noting its huge constructions, and then striking away from it to the left, we passed over a short divide of brown hill, where the narrow Pass was marked only by Bedawi graves. The morning showed a peculiar rainbow, if a bow may be called so when no rain appeared ; a perpendicular stripe,

brilliant enough, and lasting at least twenty minutes. The cloud behind it had no skirt, no droop—in fact, no sign of dissolution; and what made it the stranger was that this "bull's-eye" lay north of, and not opposite to, but quite near, the rising sun. We shall note another of these exceptional rainbows at El-Badá.*

After marching some seven miles to the south with westing, we saw inform heaps to the left: half an hour afterwards, boulder-encircled pits of a brighter green on the right, the *Themáil el-Má* ("artificial cisterns") of the Arabs, announced that we were reaching Shaghab. The caravan punished us by wasting five hours on the way, in order to force a halt; and by camping at the wrong place, when I objected to the delay. It brought with it, however, a fine young *Beden* (ibex), killed by one of the Bedawin; and we determined to stuff, to bury, and to bake it, Arab fashion, under the superintendence of the Básh-Buzúk Husayn. Unfortunately it was served to us on the next day cold, whereas it should have been eaten at once, piping hot. The meat was dark, with a beefy rather than a gamey flavour, palatable, but by no means remarkable. There were loud regrets that a *cuisse de chevreuil* had not been *marinée;* in fact, an infect odour of the Quartier Latin everywhere followed us; and

* Chap. XVII.

when a guide told us the pattern lie, that we should not reach Umm 'Amir before the fourth day, the poor "Frogs" croaked, and croaked audibly as dismally. Their last bottle of *ordinaire* was finished; Gabr, the Kázi, had come into camp, bearing a long official Arabic document from Lieutenant Yusuf, but not a single *Journal de Genève;* there was no news of a steamer being sent with rations and forage from Suez: briefly, *c'était embêtant*—to use the milder of the two favourite synonyms.

The ruins of Shaghab are built upon a more complicated site than those of Shuwák. The position is charming. The Wady Shaghab, flowing to the south, here spreads out in a broad bulge or basin open to the west. Down-stream we see a "gate" formed by the meeting of two rocky tongue-tips, both showing large works. Beyond these narrows the valley bends to the south-west and feeds the Wady Aznab, which falls into the sea south of the Dámah. The mass of the ruined city lies upon the left bank, where a high and artificial-looking *remblai* of earth masks an eastern influent, the Wady el-Aslah (*Athlah*), or "of the Kali-plant." It drains the mountain of the same name, and the Jebel Zigláb (*Zijláb*), the cones of pale granite visible from Shuwák; and upon its broad mouth the old settlement stood *à cheval.* A little north of west rises profiled the great Shárr, no longer a

ridge with a coping of four horns, but a tall and portly block, from whose summit spring heads and peaks of airy blue-pink. Slightly east of north the twins Naghar and Nughayr, combining to form the "Mountain of the Maker" (Jebel el-Sáni'), tower in the shape of a huge pyramid. Lastly, a regular ascent, the *Majrá el-Wághir*, fronts the city, sloping up to the west-north-west, and discloses a view of the Jibál el-Tihámah: this broad incline was, some three centuries ago, the route of the Hajj-caravan.

We walked down the Shaghab valley-bed, whose sides, like those of the Dámah, are *chevaux de frise* of dead wood. The characteristic rock is a conglomerate of large and small stones, compacted by hard silicious paste, and stained mauve-purple apparently by manganese: we had seen it on the way to Shuwák; and the next day's march will pave the uplands with it. The wells in the sole are distinctly Arab, triangular mouths formed and kept open by laying down tree-trunks, upon which the drawer of water safely stands. On the right bank up-stream no ruins are perceptible; those on the left are considerable, but not a quarter the size of Shuwák. Here again appear the usual succession of great squares: the largest to the east measures 500 mètres along the sides; and there are three others, one of 400 mètres by 192. They are subtended by one of many

aqueducts, whose walls, two feet thick, showed no signs of brick: it is remarkable for being run underground to pierce a hillock; in fact, the system is rather Greek or subterranean, than Roman or subaerial. Further down are the remains apparently of a fort: heaps of land-shells lie about it; they are very rare in this region, and during our four months' march we secured only two species.*

Still descending, we found the ancient or mediæval wells, numbering about a dozen, and in no wise differing from those of Shuwák. At the gorge, where the Wady escapes from view, Lieutenant Amir planned buildings on the lower right bank, and on the left he found a wall about half a mile long, with the remains of a furnace and quartz scattered about it. This stone had reappeared in large quantities, the moment we crossed the divide; the pale grey of the Jebel Zigláb and its neighbours was evidently owing to its presence; and from this point it will be found extending southwards and seawards as far as El-Hejaz. He brought with him a hard white stone much resembling trachyte, and fragments of fine green jasper.

A cursory inspection of Shaghab removed some of the difficulties which had perplexed us at Shuwák and elsewhere. In the North Country signs of metal-working, which was mostly confined to the

* *Helix desertorum* (Forsk.) and *Helix* (sp. incert.)

Wadys, have been generally obliterated; either washed away or sanded over. Here the industry revealed itself without mistake. The furnaces were few, but around each one lay heaps of *Negro* and copper-green quartz, freshly fractured; while broken handmills of basalt and lava, differing from the rub-stones and mortars of a softer substance, told their own tale.

At Shaghab, then, the metalliferous "Marú" brought from the adjacent granitic mountains was crushed, and then transported for roasting and washing to Shuwák, where water, the prime necessary in these lands, must have been more abundant. Possibly in early days the two settlements formed one, the single Σόακα of Ptolemy; and the south end would have been the head-quarters of the wealthy. Hence the Bedawin always give it precedence—*Shaghab wa Shuwák;* moreover, we remarked a better style of building in the former; and we picked up glass as well as pottery.

As a turkey buzzard (vulture) is the fittest emblem for murderous Dahome, so I should propose for Midian, now spoiled and wasted by the Wild Man, a broken handmill of basalt upon a pile of spalled *Negro* quartz.

CHAPTER XII.

FROM SHAGHAB TO ZIBÁ—RUINS OF EL-KHANDAKÍ AND UMM ÁMIL—THE TURQUOISE MINE—RETURN TO EL-MUWAYLAH.

LEAVING Lieutenant Amir to map the principal ruins, we followed the caravan up the Majrá el-Wághir, the long divide rising to the west-north-west. The thin forest reminded me of the wooded slopes of the Anti-Libanus about El-Kunaytarah: there, however, terebinths and holm-oaks take the place of these unlovely and uncomfortable thorn-trees. They are cruelly beaten—an operation called *El-Rama'*—by the Bedawi camel-man, part of whose travelling kit, and the most important part too, here as in Sinai, is the flail (*Murmár* or *Makhbat*) and the mat to receive the leaves: perhaps Acacias and Mimosas are not so much bettered by "bashing" as the woman, the whelp, and the walnut-tree of the good old English proverb. After three miles we passed, on the left, ruins of long walls and Arab

Wasm, with white memorial stones perched on black. In front rose the tall Jebel Tulayh, buttressing the right or northern bank of the Dámah; and behind it, stained faint-blue by distance, floated in the flickering mirage the familiar forms of the Tihámah range, a ridge now broken into half a dozen blocks. I had ordered the caravan to march upon the *Tuwayl el-Súk;* but, after one hour and fifteen minutes, we found the tents pitched some three miles short of it, on a bleak and ugly wave of the Wághir. The Shaykhs swore, by all holy things, that this was the veritable Tuwayl; and a Bedawi, who declared that he knew where water lay in the neighbourhood, refused to show it *sans* the preliminary "bakhshísh." Mashallah! It is a noble race.

Early next morning (six a.m., March 3rd) we followed the right bank of the Wady el-Khandakí, which runs north with westing. Beyond it lay the foot-hills of gloomy trap leading to the Jebel el-Raydán, a typical granitic form, a short demi-pique saddleback with inwards-sloping pommel like the Pão d'Assucar of picturesque Rio de Janeiro. Here as elsewhere, the granites run parallel with and seaward of the traps. The Tuwayl el-Súk is nothing but an open and windy flat, where the Hajj-caravan used to camp: an adjoining ridge, the Hamrá el-Tuwayl, shows spalled quartz, *Wasm* and memorial stones.

The principal formation here is the mauve-purple conglomerate before described.

After riding nine miles we came unexpectedly upon a large and curious ruin, backed by the broad Wady Dámah gleaming white in the sun. The first feature noticed was a pair of parallel walls, or rather their foundations, thirty-five feet apart, and nearly a kilomètre in length: it looked like a vast *hangar*. To the left lie three tracings of squares; the central is a work of earth and stone, not unlike a rude battery; and, a few paces further north, a similar fort has a cistern attached to its western curtain. Heaps of rounded boulders, and the crumbling white-edged mounds which, in these regions, always denote old habitations, run down the right bank of the Wady el-Khandakí to its junction with the Dámah. For want of a better name I called this old settlement *Kharábát* (the "Ruins of") *el-Khandakí*, and greatly regretted that we had not time enough to march down the whole line of the Dámah.

Half an hour more placed us at the great Wady, whose general direction is here west with a little southing, and which still merits its fame as an Arabian Arcadia. The banks were thickly bordered with secular tamarisks (*T. orientalis*), those hardy warriors with the Hebrew-Arabic name *Asl* (Athl), that battle against wind and weather, as successfully at Dovercourt (Essex) as at Haydarábád (Sind).

The tint was the normal grey-green, not unlike that of the traps in *arrière plan.* The clumps sheltered goats, sheep, and camels; and our mules now revel every day on green meat, growing fatter and fatter upon the *Aristida* grass, the *Panicum,* the *Hordeum murinum,* and the *Bromus* of many varieties. Fronting us rose the twin granitic peaks of Jebel Mutadán, one with a stepped side like an unfinished pyramid. They are separated from the Dámah by a rough and stony divide; and ruins with furnaces are reported to be found in their valley-drain, which feeds the great Wady 'Amúd.

We halted, after some sixteen to seventeen miles, at the water El-Ziyayb, slightly brackish but relished by our animals; and resumed our way in the cool sea-breeze at one p.m., passing the Jebel Tulayh on the north bank. The track then left the Dámah and turned up a short broad bed to the north-west. On the right rose a block of syenite, ruddy with *orthose,* all rounded lumps and twisted finials; it discharged a quantity of black sand that streaked the gravel plain. At four p.m. we camped on a broad divide, El-Kutayyifah, where an adjacent *Sha'b,* or "fold," supplied fresh rain-water. The march had been long (seven hours = twenty-two miles); and the Shaykhs and camel-men looked, the Sayyid said, as if they had "smelt Jehannum."

This divide, also called the Jayb el Sa'lúwwah,

with granites to the east, and traps mixed with granites on the west, shows signs of labour. Hard by, to the south-west, some exceptionally industrious Bedawi, of the Jeráfín-Huwaytát, had laid out a small field with barley. In the evening we walked westward to the hills that bound the slope; and came upon a rock-cut road leading to an *atelier*, where "Marú" has been spalled from the stone *in situ*. Some specimens had a light-bluish tinge, as if stained by cobalt, a metal found in several slags; and there were veins of crystalline amethyst-quartz, coloured, said the engineer, by chlorure of silver (?). The *filons* and *filets* cut the granite in all directions; and the fiery action of frequent trap-dykes had torn the ground-rock to tatters. The western side of El-Kutayyifah also showed modern ruins.

The guides reported, as usual when too late, that to the west-south-west lies a *Nakb*, called *Abú'l-Marwah* ("Father of the Quartz-place"), whose waters flow *viâ* the Mutadán to the 'Amúd valley. For some days I had cold shudders lest this Pass, thus left unvisited, might be the Zú'l-Marwah, the classical "Móchoura," one of the objects of our Expedition. The alarm proved, however, as will be seen, false. A Bedawi youth also volunteered a grand account of three "written stones;" a built well surrounded by broken quartz; and, a little off the road from El-

Kutayyifah to Umm Ámil, the remains of *El-Dayr* ("the Convent"). As Leake well knew, the latter is "a name which is often indiscriminately applied by the Arabs to ancient ruins." The lad said they were close by, but the *Garíb* ("near") and the *Gurayyib* ("nearish") of the Midianite much resemble the Egyptian Fellah's *Taht el-Wish*, "Under the face" —we should say "nose"—or *Taht el-Ka'b*, "Under the heel." They may mean a handful of miles. As he refused to guide us, we secured the services of an old shepherd, who, objecting to sleep in camp, caused abundant trouble and delay next morning.

From this divide two roads lead to the ruins of Umm Ámil: one makes a considerable detour up a branch-valley in order to avoid an ugly Pass on the direct line. I again refused the camel-men permission to proceed by the indirect route, well knowing that they would do their best to miss us. On March 4th, at six a.m., a long descent and a similar rise led us to a *Col*, which presently became a broad open plain, 2100 feet above sea-level (aner. 28·85). Tents were scattered about the valleys; the lads tended their goats, and we greatly admired one fellow who had fallen asleep in the hot ascending steams. Here the old guide halted us, and declared that on the top of the dark trap-block to the left (south) was a *Mashghal*, or "work-place," with a strew of quartz and nothing else. Thus ended

the "built well." Descending to a lower plane, bounded in front by low rolling hills, I sent Lieutenant Amir to examine the "Convent" and the "written stones." He came up with us at the halt, having been led over a rough divide by an abominable path; and he had seen only a few ruined heaps and three Arab *Wusúm.* Moreover, he had not dared to show disappointment before the old shepherd, who would probably have bolted in fear, and left him to find his own way.

Meanwhile the caravan continued its course down the broad smooth Wady Ruways, on whose left side was a large *atelier*, with broken walls and spalled quartz of the *Negro* variety. Here we found, for the first time, the handmills made of the hardest grey granite, so beautifully worked further south; they explained the fine and carefully polished tube which had been brought to the first Expedition at Zibá.* Several of these articles were all but whole, an exception in this land of "'clasts." We then struck over the stony divide to the left, towards a fine landmark—a *Khitm*, or "block," shaped like a seal cut *en cabochon*: its name is the barbarous-sounding Khurm el-Badarîyyah. During the ascent, which was easy, we passed a second strew and scatter of the white stone broken into small pieces. From the *Col*, reached at 9.45 a.m., a descent, vile

* See "The Gold Mines of Midian," Chap. II.

for camels not for mules, presently landed us in the Wady Umm Ámil. The left bank of the hideous narrow gorge showed a line of wells or water-pits, made, said Furayj, by the Mutakaddimín (*veteres*), —the Ancients who were probably Mediævals. Crossing the torrent-gully we left on its right bank the ruins of large works, especially the upper parallelogram. After a thirteen miles' ride we halted at 10.40 a.m. under a rock on the left side, opposite three couthless heaps of water-rolled stones surrounded by fine quartz. By far the poorest thing we had yet seen, this "town" had been grandiosely described to the first Expedition at Zibá. Many blessings were heaped upon the head of Ámil and his mother: the name, however, as the Sayyid suggested, is evidently a corruption of *Mu'ámil*—"the workman, the *employé*."* I would conjecture that here the slave-miners were stationed, Old Zibá being the master's abode: our caravan entitled it *El-Lomán*—"the *bagnio*, the prison for *galériens*." On the coast-town I procured some specimens of heavy red copper which had been dug out of a ruined furnace; the metal is admirable, and it retrieves to a certain extent the lost reputation of Umm Ámil.

At noon we resumed a hot ride down the ugly, rocky watercourse, both of whose banks showed

* So in Moab the ruins of "Méron" or Mérou of the Greeks has degenerated into Umm Rasás, "the Mother of Lead."

long lines of ruins. Presently, crossing a divide marked by two stone-heaps, we fell into the broader but equally unpicturesque Wady Salmá. It is on about the same parallel as Zibá (north lat. 27° 20′); and more than the usual allowance for the error of low latitude must be admitted if we would identify it with the Mediterranean κώμη of Ptolemy (vi. 7), Σάλμα, in north lat. 26°, or fifteen miles south of Sóaka.

Wady Salmá is the smallest and the northernmost of the three basins which we have just visited; the central being the Dámah, and the southern Wady Shaghab-Aslah-Aznab. Steaming southwards we shall note the mouths of all these watercourses. We presently passed on the right bank the debouchure of the Wady Ruways, and left there a guard to direct the caravan, in case it should disobey orders, and march up to Umm Ámil. Here the valley gave forage to a herd of milch-camels, apparently unguarded; each had her foal, some newborn, others dating from January or February. After one hour and forty-five minutes (= six miles) we camped on the fine sands that floor the dull line hemmed in by tall masses of red and green trap. The adjacent scatter of Arab wells in the bed is known as the Má el-Badí'ah. I carefully inquired concerning ruins in the neighbourhood; and we climbed the torrent-sides to command a (very

limited) bird's-eye view of the hills. According to the guides, there are no remains of the "old ones" nearer than Umm Ámil.

Setting out early next morning (5.45 a.m., March 5th), after half an hour down the Wady Salmá, we saw its lower course becoming a mere gorge, constricted by two opposite rocks. On the left bank, above this narrow, lies a group of Arab graves, which may have been built upon older foundations. The right side here receives the Wady Haraymal ("Little *Peganum*-plant"), the *Harátmil* of the broad-speaking Bedawin. As we struck up its dull ascent, the southern form of the Shárr-giant suddenly broke upon us, all glorious in his morning robes of ethereal gauzy pink. The foreshortened view, from the south as well as the north, shows a compact prism-formed mass which has been compared with an iceberg. The main peak, Abú Shenázir, here No. 4 from the north, proudly bears a mural crown of granite towers, which it hides from El-Muwaylah; and the southern end, a mere vanishing ridge at this angle, but shown *en face* to the seaboard abreast of it, breaks into three distinctly marked bluffs and heads.*

A divide then led upwards and downwards to the Wady Abá Rikayy, remarkable only for warm pools, and crystal-clear runnels, springing from the

* Their names will be given in Chap. XIII.

sole. The fringings of white show the presence of salt; the shallows are covered with the greenest mosses, and beetles chase one another over the depths where the waters sleep. The lower course takes the name of Wady Kifáfí, and discharges into the sea north of the Wady Salmá, with which it has erroneously been united, as in Niebuhr's *Selmá wa Kafâfa.* According to the Kátib Chelebi, who, over two centuries ago, made the "Kabr Shaykh el-Kifáfí" the second pilgrim-station south of El-Muwaylah, a certain Bedawi chief, El-Kifáfí, was killed with a spear, and his tomb became a place of pious visitation. It is said still to exist between the Wadys Salmá and Kifáfí. A third divide to the north led along the eastern flank of the Jebel Abú Rísh, which exposes its head to the sea; and, reaching the *Col*, we had the pleasure of once more greeting the blue cove that forms the port of Zibá.

We then descended into the Wady Sidrah, whose left bank is formed by the *Safrá Zibá*—"the Yellow (hill) of Zibá." This small outlying peak is clad in the gaudiest of colours, especially a vivid citron-yellow, set off by red and rusty surroundings, which are streaked with a dead chalky-white. The citizens declare that it is absolutely useless, because it does not supply sulphur. During our day's halt at Zibá, M. Marie brought from it quartz of several kinds; the waxy, the heat-altered, and the blue, stained

with carbonate of copper. Possibly this metal may be abundant at a lower horizon.

The "Valley of the (one) Jujube-tree," after narrowing to a stony gut, suddenly flares out into the Wady Zibá, the vulgar feature of these regions, provided with the normal "Gate" some three hundred yards broad. Beyond it, the flat surrounding the head of the cove is remarkably well grown with palms, clumps of the Daum, and scattered date-trees, of which one is walled round. Hence I am disposed to consider Zibá the *Φοινίκων κώμη*, or Phœnicon Vicus, of Ptolemy: although he places it in north lat. 26° 20′, or between Sharm Dumayghah and El-Wijh, when it lies in north lat. 27° 20′. I have already protested against the derivation of the word—which is written "Dhoba" by Wallin, "Deba" by Niebuhr, and "Zibber" by the Hydrographic Chart—proposed by my learned friend Sprenger.* His theory was probably suggested by El-Yákút (iii. 464), who, in the twelfth century, describes "Dhabba" as "a village on the coast, opposite to which is a settlement with flowing water, called Badá: the two are separated by seventy miles." An older name for the station is *Bir el-Sultáni*—the "Well of the Sultán" (Selim?): we shall presently inspect these remains.

* A. G., p. 24. See "The Gold-Mines of Midian," Chap. XI. Sprenger spells the word either with a Zád or a Zá: I have discussed the question in my "Itineraries," part ii. sect. 4.

Itineraries also give *Kabr el-Tawáshi*, "the Eunuch's Tomb;" and this we still find near the palms at the head of the inner baylet. It is a square measuring six paces each way, mud and coralline showing traces of plaster outside. Like Wellsted (II. x.) we failed to discover any sign of the *Birkat* ("tank") mentioned in a guide-book which Burckhardt quotes; nor had the citizens ever heard of a "reservoir."

The camping-ground of the pilgrims lies between the "Gate" and the cove-head. Around the wells sat at squat a small gathering of the filthy "Moghrebin" (*Allah yakharrib-hum!*) About 260 of these ruffians were being carried gratis, by some charitable merchant, in a Sambúk that lay at the harbour-mouth. A party had lately slaughtered a camel, of course not their own property; and yet they wondered that the Bedawin shoot them. They showed their insolence by threatening with an axe the dog Juno, when she sportively sallied out to greet them; and were highly offended because, in view of cholera and smallpox, I stationed sentries to keep them at a distance. Had there been contagious disease among them, it would have spread in no time. They haunted the wells, which were visited all day by women driving asses from the settlement; even the single old beggar of Zibá—unfailing sign of civilization—was here; and the black tents of the Arabs, who grazed their flocks at

the cove-head, lay within easy shot of infection. On the evening of the next day, when the Sambúk made sail, the shouting and screaming, the brawling, cudgelling, and fighting, heard a mile off, reminded me of the foul company of Maghrabís on board the *Golden Wire.*

"Sultán Selim's Well" has now grown to four, all large and masonry-lined. That to the south-east is dry; travellers are confined to the western, whose strong coping they have managed to tear down; whilst the northern shows hard old kerb-stones, deeply grooved and rope-channelled like that of Beersheba. We breakfasted at the head of the inner bay, whilst the Sayyid rode forward to meet his brother Mahmúd, who had kindly brought us the news from El-Muwaylah. Here we could see the townlet covering a low point projecting into the Sharm; a few large and some small tenements formed the body, whilst the head was the little *Burj* built, some fourteen years ago, upon the tall sea-bank to the north. It bore, by way of welcome, the Viceroy's flag.

The camp was pitched upon the northern shore of the inner cove, behind the new town, and sheltered by the tall sea-cliff: here stood Old Zibá, whose stones, buried for ages under the sand, are now dug up to build its successor. I thought better of the settlement and of the port after visiting them

a second time. We had looked forward to it even as to a *petit Paris:* so Damascus and the Syrian cities appear centres of civilization to Westerns coming from the East—not from the West. It is far superior, especially in the article water, to El-Muwaylah; it exports charcoal in large quantities, and it does a thriving business with the Bedawi. Here are signs of a pier, and a mosque is to be built. The fish is excellent and abundant; lobsters are caught by night near the reef, and oysters in the bay when the tide is out. We succeeded, at last, in having our *batterie de cuisine* properly tinned, and we replenished our stores.* As at El-'Akabah, "Hashísh" may be bought in any quantity, but no 'Ráki—hence, perhaps, the paleness and pastiness of the local complexion—and yet our old acquaintance, Mohammed el-Musalmáni, is a Copt who finds it convenient to be a Moslem. He aided us in collecting curiosities, especially a chalcedony (agate) intended for a talisman and roughly inscribed in Kufic characters, archaic and pointed like Bengali, with the Koranic chapter (xcii.) that testifies the Unity, "*Kul, Huw' Allah,*" etc. As regards the port, Wellsted (II. x.) is too severe upon it: "At Sherm Dhobá the anchorage is small and inconvenient, and could only be made available for boats or small vessels." Dredging the sand-bar and cutting a passage in

* See the end of this Chapter for a list.

the soft coralline reef will give excellent shelter and, some say, a depth of seventeen fathoms.

Our first care was to walk straight into the sea, travelling clothes and all. I then received the notables, including Mohammed Selámah of El-Wijh, and at once began to inquire about the *Jebel el-Fayrúz*. The chief trader pleaded ignorance: he was a stranger, a new-comer; he had never been out of the settlement. The others opposed to me hard and unmitigated lying: they knew nothing about turquoises; there were no such stones; the mines were exhausted.

And yet I knew that this coast is visited for turquoises by Europeans; and that the gem has been, and still is, sold at Suez and Cairo. Mr. Clarke had many uncut specimens at Zagázig, embedded in a dark gangue, which he called "porphyry," as opposed to the limestone which bears the silicate of copper. Upon our first Expedition, we had noticed a splendid specimen, set in a Bedawi matchlock; and the people of El-'Akabah praised highly the produce of the Jebel el-Ghál. Lastly, I happened to have heard that an Arab lately brought to Zibá a turquoise which sold there for £3. Evidently the mine, like the gold-sands before alluded to, would be carefully hidden from us. This reticence explained how, on our first visit, the two Staff-officers sent to prospect the diggings

had been misdirected to a block lying north of the townlet, the "Red Hills," *alias* the Jebel el-Shegayg.

Shortly after I left Egypt an Italian, Sig. F——, returned to Suez from El-Muwaylah, with some fine pearls worth each from £20 to £30, and turquoises which appeared equally good. He was then bound for Italy, but he intended returning to Midian in a month or two. These are the men who teach the ready natives the very latest "dodges;" such as stimulating the peculiar properties of the pearl-oyster by inserting grains of sand.

I also collected notes concerning the ruins of M'jirmah, of which we had heard so many tales. The site, they said, is a branch of the Wady Azlam, the first of the three marches between Zibá and El-Wijh, and seven and a half hours' sail along the coast. This watercourse shows, above the modern Hajj-station, the ruins of a fort built by Sultán Selim: Wellsted (II. x.) also mentions a castle lying three miles inland. From the head of the Sharm Dumayghah, seventy to seventy-two knots south of El-Muwaylah, Shaykh Furayj pointed out to us the pale-blue peaks of the Jebel Zafar:* in the upper part of its Wady, the 'Amúd Zafar, a southern branch valley of the Azlam, lies the ruin. He made it six hours' march from the seaboard. It was an ancient gold-mine (?), whose house-foundations

* See Chap. XIV.

and a "well with steps" still remain. "M'jirmah," which must not be confounded with the "Umm Jirmah," an *atelier* that we shall visit to-morrow, has been identified with the Ῥαννάθου κώμη (Rhaunathi Pagus) of Ptolemy (north lat. 25° 40′). We will return to this subject when steaming down coast.

Our day of rest ended, at seven p.m., with a heavy storm of wind and rain from the north: the sun had been unusually hot for some days, and the sky looked ugly in the evening. As usual, all assured us that the clouds contained wind, not rain. Despite which, when the mess-tent had been nearly blown down, owing to our men being unwilling to leave their warm retreats, a heavy drenching downfall set in, and continued till eleven p.m. After a short lull, wind and rain again raged at midnight; and then the gale gradually blew itself out. The next two mornings were delightfully brisk and bracing; and deep puddles dotted the rocks.

On March 7th the caravan marched straight northwards, by the Hajj-road, along the shore to its camping-ground, an affair of two hours, while M. Marie and I set off for the turquoise mine. Furayj, who had never passed that way, engaged as guide one Sulaym el-Makrafi; and this old dromedary-rider's son had been sent on to bring into camp all the *Fayrúz* he could find. Crossing at

six a.m. the broad pilgrim-track, we struck eastward at a place where the Secondary gypsum subtends the old coralline cliff. After three-quarters of an hour, we traversed the Wady Zahakán, the southernmost Pass over the Shárr (proper); and presently we ascended a branch that falls into the right bank. As we advanced, it became a rock-walled, stone-soled tunnel; winding, contracting and widening, rising and flattening, and generally interesting, compared with the dull flat breadth of such features as the Wady Salmá. The overfalls of rock and the unfriendly thorn-trees, selfishly taking up all the room, necessitate frequent zigzags up and down the rocky, precipitous banks. After a number of divides we entered the Wady Háshshah, which was wider and good for riding; and at 8.30 a.m. we passed into the Wady Umm Jirmah.

In this broad basin we found none of the ruins so often reported; but immense quantities of broken quartz showed the *Mashghal* or *atelier*. The material was distinguished, from all the outcrops hitherto observed, by its pretty pink, stained with oxide of iron: it appeared in large ramifications mostly striking east-west, and in little *pitons* dotting the valley sole and sides. A subsequent visit to Wady Umm Jirmah found many furnaces surrounded by well-worked scoriæ; of these, specimens were secured.

After another half-hour, we dismounted at the watershed of the Wady el-Ghál, where the old guide lost no time in losing his head. The Jebel el-Ghál, whose folds fall into its watercourse, is a detached block, rising nearly due south of the "Sharp Peak," as the Chart calls *Abú Kusayb*, the northernmost horn of the Shárr; while the Ghál cove, breaking the sea-cliff, bears 270° (mag.) from the summit. The hill, which may measure 250 feet above sea-level (aner. 29·75), is composed of porphyritic trap and of the hardest felspars, veined with chocolate-coloured quartz, the true gangue. While we examined the formation, Furayj and old Sulaym, who became more and more "moony," ransacked the block in all directions, and notably failed to find a trace of mining. Evidently Athor, the genius of the "Turquoise Mountain," was not to be conquered by a *coup de main;* so I determined to tire her out.

After building a stone-man on the finial of the Jebel el-Ghál, and a short rest in the north-western Wady, we remounted and struck seawards. Some ugly divides led us, after half an hour, to a broad *Fiumara*, well grown with palm-bush, the veritable Wady el-Ghál. From this point a total of four miles, and a grand total of fourteen, led us to the camp: it had been pitched at the Mahattat el-Ghál, on the north bank, where the "winter-torrent,"

falling into the cove, has broken through the sea-cliff.

Here the best of news was in store for us. Lieutenant Yusuf, who had this morning rejoined the Expedition, brought our mails from the Sambúk, which I had ordered by letter at El-'Akabah; and reported that his Highness's frigate *Sinnár*, an old friend, would relieve the lively *Mukhbir* in taking us to our last journey southwards. Rations for men and mules, and supplies for ourselves, all were coming. We felt truly grateful to the Viceroy and the Prince Minister for the gracious interest they had taken in the Expedition; and we looked forward with excitement to the proper finish of our labours. Without the third march, the exploration of Midian would have been *Abtar*, as the Arabs say, "tail-less;" that is, lame and impotent in point of conclusion.

But I would not be beaten by the enemy upon the subject of the *lapis Pharanitis* mine. During the course of the day, a Jeráfín Bedawi, Selím ibn Musallim, brought in scoriæ of copper and iron; and on the morrow I sent him as guide to Lieutenant Yusuf, with an escort of two soldiers and eight quarrymen on seven camels. After three days' absence (March 8—10) the officer rejoined us and reported as follows:—

Leaving the Mahattat el-Ghál, he rode up its

watercourse, and then turned southwards into the long Wady Umm Jirmah. After seven miles and a half (= direct five and three-quarters), he came upon the *Jebel el-Fayrúz.* It is a rounded eminence of no great height, showing many signs of work, especially three or four cuttings some twenty mètres deep. A hillock to the north-west supplied the scoriæ before mentioned. Lieutenant Yusuf blasted the chocolate-coloured quartzose rock in four places, filled as many sacks, and struck the pilgrim-road in the Wady el-Mu'arrash, leaving its red block, the Hamrá el-Mu'arrash, to the left. His specimens were very satisfactory; except to the learned geologists of the Citadel, Cairo, who pronounced them to be carbonate of copper! Dr. L. Karl Moser, of Trieste, examined them and found crystals of turquoise, or rather "johnite," as Dana has it, embedded in or spread upon the quartz. One specimen, moreover, contained silver. So much for the Zibá or southern turquoise-diggings.

Our journey ended on March 8th with a dull ride along the Hajj-road northwards. Passing the creek Abú Sharír, which, like many upon this coast, is rendered futile by a wall of coral reef, we threaded a long flat, and after two hours (= seven miles) we entered a valley where the Secondary formation again showed its *débris.* Here is the *Mahattat el-Husan* ("the Stallion's Leap"),

a large boulder lying to the left of the track, and pitted with holes which a little imagination may convert into hoof-prints. The name of the noble animal was *El-Mashhúr;* that of its owner is, characteristically enough, forgotten by the Arabs: it lived in the Days of Ignorance; others add, more vaguely still, when the Beni 'Ukbah, the lords of the land, were warring with the Baliyy. The gorge was then a mere cutting, blocked up by this rock. *El-Mashhúr* "negotiated" it, alighting upon the surface like a Galway hunter taking a stone wall; and carried to Wady Tiryam its rider, whose throat was incontinently cut by the foeman in pursuit. The legend is known to all, and the Bedawin still scrape away the sands which threaten to bury the boulder: it has its value, showing that in regions where the horse is now unknown, where, in fact, nothing but a donkey can live, noble blood was once bred. The same remark is made by Professor Palmer ("The Desert of the Exodus," p. 42) concerning the *Mangaz Hisán Abú Zená* ("Leap of the Stallion of the Father of Adultery"), two heaps of stone near the Sinaitic Wady Gharandal. There, however, the animal is cursed, while here it is blessed: perhaps, also, the Midianite tradition may descend from a source which, still older, named the Ἵππος κώμη. Is this too far-fetched? And yet, peradventure, it may be true.

We then fell into the Wady Jibbah; passed the Jebel el-Kibrít, examined M. Philipin's work, and, led over a very vile and very long "short cut," found ourselves once more on board the *Mukhbir*.

NOTE ON THE SUPPLIES PROCURABLE AT ZIBÁ.

The chief stores are:—

Rice (good Yemani), per *Kis*, or bag of five and a half Kaylah (each twenty-one Ratl = eighteen pounds), four to six dollars.

Durrah (*Sorghum*), per Ardebb (each = twelve Kaylah), seven and a half to eight dollars.

Dukhn (millet), not common, per Ardebb, eight dollars.

Wheat, always procurable, per Ardebb, ten to twelve dollars.

Barley, always procurable, per Ardebb, five to six dollars.

'Adas (lentils, *Revalenta Arabica*), per Ardebb, ten to twelve dollars.

Samn (liquified butter), per Ratl, seven and a half to eight dollars.

Coffee (green), per pound, eighteen-pence.

'Ajwah (pressed dates), 100 to 110 piastres per Kantar (= 100 Ratl).

Eggs, thirty-five to the shilling.

It is generally possible to buy small quantities of Hummus (lupins or chick-peas), Kharrúb (carob-pods), "hot" and coarse tobacco for the Arabs, and cigarette-paper, matches, etc.

CHAPTER XIII.

A WEEK AROUND AND UPON THE SHÁRR MOUNTAIN—RÉSUMÉ OF THE MARCH THROUGH EASTERN OR CENTRAL MIDIAN.

For months the Jebel Shárr, the grand block which backs El-Muwaylah, had haunted us, starting up unexpectedly in all directions, with its towering heads, that shifted shape and colour from every angle, and with each successive change of weather. We could hardly leave unexplored the classical "Hippos Mons," the Moslem's *El-Isháráh* ("the Landmark"), and the *Bullock's Horns* of the prosaic British tar.* The few vacant days before the arrival of the *Sinnár* offered an excellent opportunity for studying the Alpine ranges of maritime Midian. Their stony heights, they said, contain wells and water in abundance, with palms, remains of furnaces, and other attractions. Every gun was brought into requisition, by tales of leopard and

* "Irwin's Voyage," 1777.

ibex, the latter attaining the size of bullocks (!) and occasionally finding their way to the fort:—it was curious to hear our friends, who, as usual, were great upon "*le shport*," gravely debating whether it would be safe to fire upon *le léopard*. I was anxious to collect specimens of botany and natural history from an altitude hitherto unreached by any traveller in Western Arabia; and, lastly, there was geography as well as mineralogy to be done.

The Hydrographic Chart gives the Mountain a maximum of nine thousand* feet, evidently a clerical error often repeated—really those Admiralty gentleman are too incurious: Wellsted, who surveyed it, remarks (II. x.), "The height of the most elevated peak was found to be 6500 feet, and it obtained from us the appellation of 'Mowilahh High Peak'"—when there are native names for every head. We had been convinced that the lesser is the true measure, by our view from the Hismá plateau, 3800 feet above sea-level. Again, the form, the size, and the inclination of the noble *massif* are wrongly laid down by the hydrographers. It is a compact block, everywhere rising abruptly from low and sandy watercourses, and completely detached from its neighbours by broad Wadys—the Surr to

* This was probably a misprint originally, but it has been repeated in subsequent editions. Hence it imposed upon even such careful workmen as the late Lieutenant Henry Raper, "The Practice of Navigation," etc., p. 527, 6th edition.

the north and east, while southwards run the Kuwayd and the Zahakán. The huge long-oval prism measures nineteen and a half by five miles (= ninety-seven and a half square miles of area); and its lay is 320° (mag.), thus deflected 40° westward of the magnetic north. The general appearance, seen in profile from the west, is a Pentedactylon, a central apex, with two others on each side, tossed, as it were, to the north and south, and turning, like *chiens de faïence*, their backs upon one another.

Moreover, the Chart assigns to its "Mount Mowilah" only two great culminations—"Sharp Peak, 6330 feet," to the north; and south of it, "High Peak, 9000." The surveyors doubtless found difficulty in obtaining the Bedawi names for the several features, which are unknown to the citizens of the coast; but they might easily have consulted the only authorities, the Jeráfín-Huwaytát, who graze their flocks and herds on and around the mountain. As usual in Arabia, the four several main "horns" are called after the *Fiumaras* that drain them. The northernmost is the *Abú Gusayb* (Kusayb) or Ras el-Gusayb (the "Little Reed"), a unity composed of a single block and of three knobs in a knot; the tallest of the latter, especially when viewed from the south, resembles an erect and reflexed thumb—hence our "Sharp Peak." Follows *Umm el-Furút* (the "Mother of Plenty"), a mural crest, a quoin-shaped

wall, cliffing to the south: the face, perpendicular where it looks seawards, bears a succession of scars, upright gashes, the work of wind and weather; and the body which supports it is a slope disposed at the natural angle. An *innominatus*, in the shape of a similar quoin, is separated by a deep *Col*, apparently a torrent-bed, from a huge *Beco de Papagaio*—the "Parrot's Bill" so common in the Brazil. This is the *Abú Shenázir* or Shaykhánib (the "Father of Columns"); and, as if two names did not suffice, it has a third, Ras el-Huwayz ("of the Little Cistern"). It is our "High Peak," the most remarkable feature of the sea-façade, even when it conceals the pair of towering pillars that show conspicuously to the north and south. From the beak-shaped apex the range begins to decline and fall; there is little to notice in the fourth horn, whose unimportant items, the Ras Lahyánah, the Jebel Malíh, and the Umm Gisr (*Jisr*), end the wall. Each has its huge white Wady, striping the country in alternation with dark-brown divides, and trending coastwards in the usual network.

The material of the four crests is the normal grey granite, enormous lumps and masses rounded by degradation; all chasms and naked columns, with here and there a sheet burnished by ancient cataracts, and a slide trickling with water, unseen in the shade and flashing in the sun like a sheet of crystal.

The granite, however, is a mere mask or excrescence, being everywhere based upon and backed by the green and red plutonic traps which have enveloped it. And the prism has no easy inland slopes, as a first glance suggests; instead of being the sea-wall of a great plateau, it falls abruptly to the east as well as to the west. The country behind it shows a perspective of high and low hills, lines of dark rock divided from one another by Wadys of the usual exaggerated size. Of these minor heights only one, the *Jebel el-Sahhárah* looks down upon the sea, rising between the Dibbagh-Kh'shabríyyah block to the north, and the Shárr to the south. Beyond the broken eastern ground, the ruddy Hismá and the gloomy Harrah form the fitting horizon.

After this much for geography, we may view the monarch of Midianite mountains in the beauty and the majesty of his picturesque form. Seen from El-Muwaylah, he is equally magnificent in the flush of morning, in the still of noon, and in the evening glow. As the rays, which suggested the obelisk, are shooting over the southern crests, leaving the basement blue with a tint between the amethyst and the lapis lazuli, its northern third lies wrapped in a cloak of cold azure grey, and its central length already dons a half-light of warmer hue. Meanwhile, the side next the sun is flooded with an aerial aureole of subtle mist, a drift of liquid gold, a gush

of living light, rippling from the unrisen orb, decreasing in warmth and brilliancy, paling and fading and waxing faint with infinite gradations proportioned to the increase of distance. Again, after the clear brooding sheen of day has set off the "stark strength and grandeur of rock-form contrasted with the brilliancy and sprightliness of sea," the sinking sun paints the scene with the most gorgeous of blazonings. The colours of the pale rock-skeleton are so faint that there is nothing to interfere with the perfect development of atmospheric effects: it is a white sheet spread to catch the grand illumination, lambent lights of saffron and peach-blossom and shades of purple and hyacinth. As indescribably lovely is the after-glow, the zodiacal light which may have originated the pyramid; the lively pink reflection from the upper atmosphere; the vast variety of tints with which the greens and the reds, the purples and the fiery crimsons of the western sky tincture the receptive surface of the neutral-hued granites; and the chameleon-shiftings of the dying day, as it sinks into the arms of night. Nor less admirable are the feats of the fairy Refraction. The mighty curtain seems to rise and fall as if by magic: it imitates, as it were, the framework of man. In early morning the dancing of the air adds many a hundred cubits to its apparent stature: it is now a giant, when at midnight, after the equipoise of

atmospheric currents, it becomes a dwarf *replica* of its former self.

* * * * * *

I had neglected to order overnight the camels from El-Muwaylah, a penny-wise proceeding which delayed our departure. It was nearly nine a.m. (March 13th) before we left the *Mukhbir*, whose unhappies still sighed and yearned for the civilization and dissipation of Suez; landed at the head of the Sharm Yáhárr, and marched up the Wady Hárr. We were guided by two Jeráfín, Sulayman ibn Musallim and Farj ibn 'Awayz; the former a model hill-man, a sturdy, thick-legged, huge-calved, gruff-voiced, full-bearded fellow, hot-tempered, good-humoured, and renowned as an ibex-hunter. His gun, marked "Lazari Coitinaz," was a long-barrelled Spanish musket, degraded to a matchlock: it had often changed hands, probably by theft, and the present owner declared that he had bought it for seventy dollars—nearly £15! Yet its only luxury was the bottom of a breechloader brass cartridge, inlaid and flanked by the sharp incisors of the little *Wabar*, or mountain coney. These Bedawin make gunpowder for themselves; they find saltpetre in every cavern, and they buy from Egypt the sulphur which is found in their own hills.

After a few minutes we left the Hárr, which drains the tallest of the inland hillock-ranges, and

the red block "Hamrá el-Maysarah;" and we struck south-east into the Wady Sanawíyyah. It is a vulgar valley with a novelty, the *Tamrat Faraj*. This cairn of brick-coloured boulders buttressing the right bank has, or is said to have, the Memnonic property of emitting sounds—*Yarinn* is the Bedawi word. The boomings and bellowings are said to be loudest at sunrise and sunset. The "hideous hum" of such subterraneous thunderings is alluded to by all travellers in the Dalmatian Island of Melada, and in the Narenta Valley. The marvel has been accounted for by the escape of imprisoned air unequally expanded, but "a veil of mystery hangs over the whole."* The valley-sides of dark trap were striped with white veins of heat-altered argil; the sole with black magnetic sand; and patches of the bed were buttercup-yellow with the Handán (dandelion), the Cytisus, and the Zaram (*Panicum turgidum*) loved by camels. Their jaundiced hue contrasted vividly with the red and mauve blossoms of the boragine El-Kahlá, the blue flowerets of the *Lavandula* (El-Zayti), and the delicate green of the useless† asphodel (*El-Borag*), which now gave a faint and shadowy aspect of verdure to the slopes.

* See an excellent description of the phenomenon in that honest and courageous work, "Through Bosnia and the Herzegovina on Foot," by Arthur J. Evans, B.A., F.S.A. London: Longmans, 1877.

† There is, however, nothing to prevent its being eaten.

Although the rise was inconsiderable, the importance of the vegetation palpably decreased as we advanced inland.

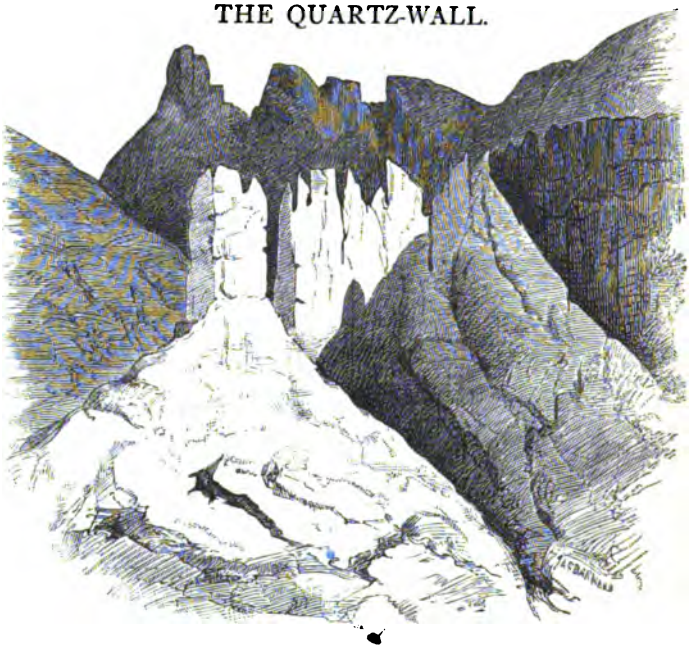
After four miles we reached the Wady-head, and wasted a couple of hours awaiting the camels that carried our supplies. The path then struck over a stony divide, with the Hamrá to the left or north, and on the other side the Hamrá el-Mu'arrash, made familiar to us by our last march. The latter ends in an isolated peak, the Jebel Gharghúr, which, on our return, was mistaken for the sulphur-hill of Jibbah. Presently we renewed acquaintance with the Wady el-Bayzá, whose lower course we had crossed south of Sharm Yáhárr: here it is a long and broad, white and tree-dotted expanse, glaring withal, and subtending all this section of the Shárr's sea-facing base. We reached, after a total of eight miles, the *Jibál el-Kawáim*, or "the Perpendiculars," one of the features which the Bedawin picturesquely call the *Aulád el-Shárr* ("Sons of the Shárr"). The three heads, projected westwards from the Umm Furút peak and then trending northwards, form a lateral valley, a bay known as Wady el-Káimah. It is a picturesque feature with its dark sands and red grit, while the profile of No. 3 head, the Káimat Abú Ráki', shows a snub-nosed face in a judicial wig, the trees forming an apology for a beard. I thought of "Buzfuz Bovill."

We camped early, as the *Safh el-Shárr* (the "Plain of the Shárr") and the lateral valley were found strewed with quartzes, white, pink, and deep slate-blue. The guides had accidentally mentioned a "Jebel el-Marú," and I determined to visit it next morning. The night was warm and still. The radiation of heat from the huge rock-range explained the absence of cold, so remarkable during all this excursion—hence the African traveller ever avoids camping near bare stones. Dew, however, wetted our boxes like thin rain: the meteor, remarked for the first time on March 13th, will last, they say, three months, and will greatly forward vegetation. It seems to be uncertain, or rather to be influenced by conditions which we had no opportunity of studying: at times it would be exceptionally heavy, and in other places it was entirely absent. Before evening new contract-boots, bought from the *Mukhbir*, were distributed to the soldiers and all the quarrymen, who limped painfully on their poor bare feet: —next day all wore their well-hidden old boots.

Early on March 14th we ascended the Wady el-Káimah, which showed a singular spectacle, and read us another lecture upon the diversity of formation which distinguishes this region. An abrupt turn then led over rough ground, the lower folds of the *Umm Furút*, where a great granite gorge, the Nakb Abú Sha'r, ran up to a depression in the dorsum,

an apparently practicable *Col.* Suddenly the rocks assumed the quaintest hues and forms. The quartz, slaty-blue and black, was here spotted and streaked with a dull, dead white, as though stained by the droppings of myriad birds: there it lay veined and marbled with the most vivid of rainbow colours—

THE QUARTZ-WALL.



reds and purples, greens and yellows, set off by the pale chalky white. Evident signs of work were remarked in a made road running up to the Jebel el-Marú (proper), whose strike is 38° (mag.), and whose dip is westward. It is an *arête*, a cock's-comb of snowy quartz some sixty feet high by forty-five broad at the base; crowning a granitic fold that

descends abruptly, with a deep fall on either side, from the "Mother of Plenty." This strangely isolated wall, left standing by the denudation that swept away the containing stone, had been broken by perpendicular rifts into four distinct sections; the colour became whiter as it neared the coping, and each rock was crowned with a capping that sparkled like silver in the sudden glance of the "cloud-compelling" sun. The sight delighted us; and M. Lacaze here made one of his most effective *croquis*, showing the explorers reduced to the size of ants. As yet we had seen nothing of the kind; nor shall we see a similar vein till we reach Abú'l-Marwah, near our farthest southern point. I expected a corresponding formation upon the opposite eastern versant: we found only a huge crest, a spine of black plutonic rock, intensely ugly and repulsive. As we rode back down the "Valley of the Perpendiculars," the aspect of the Jebel el-Marú was *épâtant*—to use another favourite camp-word. Standing sharply out from its vague and gloomy background made gloomier by the morning mists, the *Col*, whose steep rain-cut slopes and sole were scattered with dark trees and darker rocks, this glittering wall became the shell of an enchanted castle in Gustave Doré.

Returning to our old camping-ground after a ride of three hours and thirty minutes (= nine miles), we crossed two short divides, and descended the

Wady el-Kusayb, which gives a name to "Sharp Peak." Here a few formless stone-heaps and straggling bushes represented the ruins, the gardens of palms, and the bullrushes of the Bedawi shepherd lads.* Our tents had been pitched in the *rond-point* of the Wady Surr, which before had given us hospitality (February 19th), on a *Safh* or high bouldery ledge of the left bank, where it receives the broad Kusayb watercourse. The day had been sultry; the sun was a "rain sun," while the clouds massed thick to the south-west; and at night the lamps of heaven shone with a reddish, lurid light. The tent-pegs were weighted with camel-boxes against the storm; nevertheless, our mess-tent was levelled in a moment by the howling north-easter—warm withal—which, setting in about midnight, made all things uncomfortable enough.

Whilst the caravan was ordered to march straight up the noble Wady Surr, we set off next morning at six a.m. up the Wady Malíh, the north-eastern branch of the bulge in the bed. A few Arab tents were scattered about the bushes above the mouth; and among the yelping curs was a smoky-faced tyke which might have been Eskimo-bred:—hereabouts poor 'Brahim had been lost, and was not fated to be found. A cross-country climb led to the Jebel Malíh, whose fame for metallic wealth

* See Chap. X.

gave us the smallest expectations—hitherto all our discoveries came by surprise. A careful examination showed nothing at all; but a few days afterwards glorious specimens of cast copper were brought in, the Bedawi declaring that he had found them amongst the adjoining hills. In the re-entering angles of the subjacent Wady the thrust of a stick is everywhere followed by the reappearance of stored-up rain, and the sole shows a large puddle of brackish and polluted water. Perhaps the *Malayh* of the Bedawin may mean "the salt" (Málih), not "the pleasant" (Malíh). Malíh, or Mallih, is also the name of a plant, the *Reaumuria vernice* of Forskâl.

Resuming our ride up the torrent-bed, and crossing to the Wady Daumah (of the "Single Daum-palm"), we dragged our mules down a ladder of rock and boulder, the left bank of the upper Surr. The great valley now defines, sharply as a knife-cut, the northernmost outlines of the Shárr, whose apex, El-Kusayb, towered above our heads. Thorn-trees are abundant; fan-palm bush grows in patches; and we came upon what looked like a flowing stream ruffled by the morning breeze: the guides declared that it is a rain-pool, dry as a bone in summer. Presently the rocky bed made a sharp turn; and its "Gate" opened upon another widening, the meeting-place of four Wadys, the northern being the Wady Zibayyib that drains ruddy Abá'l-bárid.

After a short halt to examine the rude ruins reported by Mr. Clarke,* we resumed the ascent of the Surr, whose left bank still defines the eastern edge of the Shárr. The latter presently puts forth the jagged spine of black and repulsive plutonic rock, which notes the Sha'b Makhúl, the corresponding versant of the Nakb Abú Sha'r. The Bedawin, who, as usual, luxuriate in nomenclature, distinguish between the eastern and western faces of the same block, and between the Wadys of the scarp and the counter-scarp. For instance, the eastern front of the Ras el-Kusayb is called *Abú Kurayg* (Kurayj). This is natural, as the formations, often of a different material, show completely different features.

A little further on, the continuity of the right bank is broken by the Wady el-Hámah. It receives the Wady Kh'shabríyyah, which, bifurcating in the upper bed, drains the Dibbagh and the Umm Jedayl blocks; and in the fork lie, we were told, the ruins of El-Fara', some five hours' march from this section of the Surr. At the confluence of El-Hámah we found the camels grazing and the tents pitched without orders: the two Shaykhs were determined to waste another day, so they were directed to reload while we breakfasted. Everything was in favour of a long march; the dusty, gusty north-easter had blown itself out in favour of a pleasant southerly wind, a sea-breeze deflected from the west.

* Chap. X.

After marching three miles we camped at the foot of the ridge to be ascended next morning: the place is called *Safhat el-Mu'ayrah* from a slaty schistose hill on the eastern bank. The guides declared that the only practicable line to the summit was from this place; and that the Sha'bs (*Cols*) generally cannot be climbed even by the Arabs—I have reason to believe the reverse. Musallim, an old Bedawi, brought, amongst other specimens from the adjacent *atelier*, the Mashghal el-Mu'ayrah, a bright bead about the size of No. 5 shot: in the evening dusk it was taken for gold, and it already aroused debates concerning the proper direction of the promised reward, fifty dollars. The morning light showed fine copper. Here free metal was distinctly traceable in the scoriæ, and it was the first time that we had seen slag so carelessly worked. Not a little merriment was caused by the ostentatious display of "gold-stones," marked by M. Philipin's copper-nailed boots. Sulaymán, the Bedawi, had killed a *Wabar*, whose sadly mutilated form appeared to be that of the Syrian hill coney: these men split the bullet into four; "pot" at the shortest distance, and, of course, blow to pieces any small game they may happen to hit.

Early on March 16th we attacked the Shárr in a general direction from north to south, where the ascent looked easy enough. On the left bank a

porphyritic block, up whose side a mule can be ridden, is disposed in a slope of the palest and most languid of greens, broken by piles of black rock so regular as to appear artificial. This step leads to a horizontal crest, a broken wall forming its summit: it is evidently an outlier; and experience asked, What will be behind it? The more distant plane showed only the heads of the *Shenázir* or "Pins," the two quaint columns which are visible as far as the Shárr itself. This lower block is bounded, north and south, by gorges; fissures that date from the birth of the mountain, deepened by age and raging torrents: apparently they offered no passage. In the former direction yawns the Rushúh Abú Tinázib, so called from its growth—the Tanzub-tree* (*Sodada decidua*); and in the latter the Sha'b Umm Khárgah (Khárjah). I should have preferred a likely looking *Nakb*, south of this southern gorge, but the Bedawin, and especially *Abú Khartúm*, who had fed his camels and sheep upon the mountain, overruled me.

The ascent of the outlier occupied three very slow hours, spent mostly in prospecting and collecting. At nine a.m. we stood 3200 feet above sea-level (aner. 26·79), high enough to make our tents look like bits of white macadam. What most struck

* Not to be confounded with the luguminous "Tanúb" mentioned by Forskâl ("Flora," etc., p. 197).

us was the increased importance of the vegetation, both in quantity and quality; the result, doubtless, of more abundant dew and rain, as well as of shade from each passing mist-cloud. The view formed a startling contrast of fertility and barrenness. At every hundred yards the growths of the plain became more luxuriant in the rich humus filling the fissures, and, contrary to the general rule, the plants, especially the sorrel (*Rumex*) and the dandelion (*Taraxacum*), instead of dwindling, gained in stature. The strong-smelling *Ferula* looked like a bush, and the *Sarh* grew into a tree: the Ar'ar,* a homely hawthorn (hawthorn-leaved *Rhus*), whose appearance was a surprise, equalled the *Cratægus* of Syria; and the upper heights must have been a forest of fine junipers (Habíbah = *Juniperus Phœnicea*), with trunks thick as a man's body. The guides spoke of wild figs, but we failed to find them. Our *chasseurs*, who had their guns, eagerly conned over the traces of ibex and hyenas, and the earths, as well as the large round footprints, of *un léopard;* but none of the larger animals were seen. The

* The word classically means the cypress or the juniper-tree: in Jeremiah, where it occurs twice (xvii. 6 and xlviii. 6), the Authorized Version renders it by "heath." It is now generally translated "savin" (*Juniperus sabina*), a shrub whose purple berries have a strong turpentine flavour. When shall we have a reasonable version of Hebrew Holy Writ, which will retain the original names of words either untranslatable or to be translated only by guess-work?

Bedawi matchlock has made them wary; chance might give a shot the first day: on the other hand, skill might be baffled for a month or two—I passed six weeks upon the Anti-Libanus before seeing a bear. The noble Shinnár-partridge again appeared; an eagle's feather lay on the ground; two white *papillons* and one yellow butterfly reminded me of the Camarones Mountain; the wild bee and the ladybird-like Ba'úzah stuck to us as though they loved us; and we were pestered by the attentions of the common fly. The Egyptian symbol for "Paul Pry" is supposed to denote an abundance of organic matter: it musters strong throughout Midian, even in the dreariest wastes; and it accompanies us everywhere, whole swarms riding upon our backs.

The only semblance of climbing was over the crest of brown, burnished, and quartzless traps. Even there the hands were hardly required, although our poor feet regretted the want of *Spartelles.** Here the track debouched upon an inverted arch, with a hill, or rather a tall and knobby outcrop of rock, on either flank of the keystone. The inland or eastward view was a map of the region over which we had travelled; a panorama of little chains mostly

* In Cairo generally called *Espadrilles*, and sold for 1·25 francs. Nothing punishes the feet at these altitudes so much as leather, black leather.

running parallel with the great range, and separated from it by Wadys, lateral, oblique, and perpendicular. Of these torrent-beds some were yellow, others pink, and others faint sickly green with decomposed trap; whilst all bore a fair growth of thorn-trees—Acacias and Mimosas. High over and beyond the monarch of the Shafah Mountains, *Jebel Sahhárah*, whose blue poll shows far out at sea, ran the red levels of the Hismá, backed at a greater elevation by the black-blue Harrah. The whole Tihámah range, now so familiar to us, assumed a novel expression. The staple material proved to be blocks and crests of granite, protruding from the younger plutonics, which enfolded and enveloped their bases and backs. The one exception was the dwarf Umm Jedayl, a heap composed only of grey granite. The Jebel Kh'shabríyyah in the Dibbagh block attracted every eye; the head was supported by a neck swathed as with an old-fashioned cravat.

The summit of the outlier is tolerably level, and here the shepherds had built small hollow piles of dry stone, in which their newly yeaned lambs are sheltered from the rude blasts. The view westwards, or towards the sea, which is not seen, almost justifies by its peculiarity the wild traditions of built wells, of a "moaning mountain," and of furnaces upon the loftiest slopes: it is notable that the higher we went, the less we heard of these features, which at

last vanished into thin air. Our platform is, as I suspected, cut off from the higher plane by a dividing gorge; but the depth is only three hundred feet, and to the south it is bridged by a connecting ridge. Beyond it rises the great mask of granite forming the apex, a bonier skeleton than any before seen. Down the northern sheet-rocks trickled a thin stream that caught the sun's eye; thus the ravine is well supplied with water in two places. South of it rises a tempting *Col*, with a slope apparently easy, separating a dull mass of granite on the right from the peculiar formation to the left. The latter is a dome of smooth, polished, and slippery grey granite, evidently unpleasant climbing; and from its landward slope rise abrupt, as if hand-built, two isolated gigantic "Pins," which can hardly measure less than four hundred feet in stature. They are the remains of a sharp granitic comb whose apex was once the "Parrot's Beak." The mass, formerly mammilated, has been broken and denticulated by the destruction of softer strata. Already the lower crest, bounding the Sha'b Umm Khárgah, shows perpendicular fissures which, when these huge columns shall be gnawed away by the tooth of Time, will form a new range of pillars for the benefit of those ascending the Shárr, let us say in about A.D. 10,000. Such are the "Pins" which name the mountain; and which, concealed from the coast, make so curious a

show to the north, south, and east of this petrified glacier.

After breaking their fast, MM. Clarke, Lacaze, and Philipin volunteered to climb the tempting *Col.* None of them had ever ascended a mountain, and they duly despised the obstacles offered by big rocks distance-dwarfed to paving-stones; and of sharp angles, especially the upper, perspective-blunted to easy slopes. However, all three did exceeding well: for such a "forlorn hope" young recruits are better than old soldiers. They set out at eleven a.m., and lost no time in falling asunder; whilst the quarry-men, who accompanied them with the water-skins, shirked work as usual, lagged behind, sat and slept in some snug hollow, and returned, when dead-tired of slumber, declaring that they had missed the "Effendis."

M. Philipin took singly the sloping side of the connecting ridge; and, turning to the right, made straight for the "Pins," below which was spread a fleck of lean and languid green. The ascent was comparatively mild, except where it became a sheet of smooth and slippery granite; but when he reached a clump of large junipers, his course was arrested by a *bergschrund*, which divides this block—evidently a second outlier—from the apex of the Shárr, the "Dome" and the "Parrot's Beak." It was vain to attempt a passage of the deep gash, with perpen-

dicular upper walls, and lower slopes overgrown with vegetation; nor could he advance to the right and rejoin his companions, who were parted from him by the precipices on the near side of the *Col.* Consequently, he beat a retreat, and returned to us at 2.30 p.m., after three hours and thirty minutes of exceedingly thirsty work: the air felt brisk and cool, but the sun shone pitilessly, unveiled by the smallest scrap of mist. He brought with him an ibex-horn still stained with blood, and a branch of juniper, straight enough to make an excellent walking-stick.

The other two struck across the valley, and at once breasted the *couloir* leading to the *Col*, where we had them well in sight. They found the ascent much "harder on the collar" than they expected: fortunately the sole of the huge gutter yielded a trickle of water. The upper part was, to their naïve surprise, mere climbing on all fours; and they reached the summit, visible from our halting-place, in two hours. Here they also were summarily stopped by perpendicular rocks on either side, and by the deep gorge or *crevasse*, shedding seawards and landwards, upon whose further side rose the "Parrot's Beak." The time employed would give about two thousand feet, not including the ascent from the valley (three hundred feet); and thus their highest point could hardly be less than 5200 feet.

Allowing another thousand for the apex, which they could not reach,* the altitude of the Shárr would be between 6000 and 6500 feet.

The shadows were beginning to lengthen before the two reappeared, and the delay caused no small apprehension; the Sayyid showed a kindly agitation that was quite foreign to his calm and collected demeanour, when threatened by personal danger. To be benighted amongst these cruel mountains must be no joke; nor would it have been possible to send up a tent or even mouth-munition. However, before the sun had reached the west, they came back triumphant with the spoils of war. One was a snake (*Echis colorata*, Günther), found basking upon the stones near the trickle of water. It hissed at them, and, when dying, it changed colour, they declared, like a chameleon—that night saw it safely in the spirit-tin. They were loaded with juniper boughs, and fortunately they had not forgotten the berries; the latter establish the identity of the tree with the common Asiatic species. M. Lacaze brought back several Alpine plants, a small *Helix* which he had found near the summit, and copious scrawls for future *croquis*—his studies of the "Pins" and the "Dome" were greatly admired at Cairo.

* The explorers laid this down at a few hundred feet. But they judged from the eye; and probably they did not sight the true culmination. Unfortunately, and by my fault, they were not provided with an aneroid.

Ere the glooms of night had set in, we found ourselves once more at the tents. Only one man suffered from the ascent, and his sunstroke was treated in Egyptian fashion. Instead of bleeding like that terrible, murderous Italian school of Sangrados, the Fellahs tie a string tightly round the head; and after sunset—which is considered *de rigueur*—they fill the ears with strong brine. According to them the band causes a bunch of veins to swell in the forehead, and, when pressed hard, it bursts like a pistol-shot. The cure is evidently effected by the cold salt-and-water. The evening ended happily with the receipt of a mail, and with the good news that the *Sinnár* corvette had been sent to take the place of *El-Mukhbir*, the unfortunate. Once more we felt truly grateful to the Viceroy and the Prince who so promptly and so considerately had supplied all our wants, and whose kindness would convert our southern cruise into a holiday *gîte*, without the imminent deadly risk of a burst boiler.

We set out in high spirits on the next morning (6.15 a.m., March 17th), riding, still southwards, up the Surr: the stony, broken surface now showed that we were fast approaching its source. Beyond the Umm Khárgah gorge on the western bank, rose a tall head, the *Ras el-Rukabíyyah;* and beyond it was a ravine, in which palms and water are said to

be found. The opposite side raised its monotonous curtain of green and red traps, whose several projections bore the names of Jebel el-Wu'ayrah—the hill behind our camping-ground—Jebel el-Ma'ín, and Jebel Sháhitah. A little beyond the latter debouched the Darb el-Kufl ("Road of Caravans"), *alias* Darb el-Ashárîf ("Road of the Sherifs"), a winding gap, the old line of the Egyptian pilgrims, by which the Sulaymíyyín Bedawin still wend their way to Suez. The second name, perhaps, conserves the tradition of long-past wars waged between the Descendants of the Apostle and the Beni 'Ukbah.* The broad mouth was dotted with old graves, with quartz-capped memorial-cairns, and, here and there, with a block bearing some tribal mark. The Wady-sole grew a "stinkhorn" held to be poisonous, and called, from its fetor, "Faswat el-'Agúz" (*Cynophallus impudicus*): one specimen was found on the tip of an ibex-horn, and the other had been impaled with a stick. After two hours and thirty minutes (= seven miles) we sighted the head of the Wady Surr proper, whose influents drain the southern *Khuraytah* or Hismá Pass. Here the amount of green surface, and the number of birds, especially the blue-rock and the insect-impaling "butcher," whose nests were in the thin forest of thorn-trees, argue that water is not far off. The Ras Wady Surr is a charming halting-place.

* See Chap. V.

Our Arabs worked hard to gain another day. The only tolerable Pass rounding the southern Shárr was, they declared, the Wady Aújar, an influent of the Wady Zahakán, near Zibá. The *Col* el-Kuwayd, now within a few yards of us, is so terrible that the unfortunate camels would require, before they could attempt it, at least twenty-four hours of preparatory rest and rich feeding; and so forth. However, we pushed them on with flouts and jeers, and we ourselves followed at eleven a.m.

The Pass proved to be one of the easiest. It began with a gradual rise up a short broad Wady, separating the southernmost counterforts of the Shárr from the north end of the Jebel el-Ghuráb. This "Raven Mountain" is a line of similar but lower formation, which virtually prolongs the great "Landmark," down coast. The bottom was dotted with lumps of pure "Marú," washed from the upper levels. We reached the summit in forty minutes, and the seaward slope beyond it was a large outcrop of quartz *in situ*, that assumed the strangest appearance,—a dull, dead chalky-white, looking as if heat-altered or mixed with clay. The rock-ladder leading to the lower Wady Kuwayd, which has an upper branch of the same name, offered no difficulty to man or beast; and the aneroid showed its height to be some 470 feet (28·13—28·50). The caravan, having preceded us, revenged itself by camping at

the nearest pool, distant nineteen and a half direct geographical miles from our destination.

This day was the first of the *Khamsín* or, as M. Loufti (?), a Coptic student, writes it, "Khamasín," from *Khama* ("warm") and *Sina* ("air").* The Midianites call it *El-Dufún*, the hot blasts, and expect it to blow at intervals for a couple of months. This scirocco has been modified in Egypt, at least during the spring, apparently by the planting of trees. About a quarter-century ago, its regular course was three days: on the first it set in; the second was its worst; and men knew that it would exhaust itself on the third. Now it often lasts only a single day, and even that short period has breaks.

The site of the camp made sleep well-nigh impossible—a bad preparation for the only long ride of this excursion. Setting off at dark (4.20 a.m., March 18th), we finished the monotonous Wady Kuwayd, which mouths upon the rolling ground falling coastwards. The track then struck to the north-west, across and sometimes down the network of Wadys that subtends the south-western Shárr—their names have already been mentioned. As we sighted the cool green-blue sea, its horizon-line appeared pro-

* For the usual interpretations see Chapter I. The Egyptians, like other nations, often apply their own names, which have a meaning, to the older terms which have become unintelligible. Thus, near Cairo, the old goddess, *Athor el-Núbi* ("of the Gold"), became *Asr el-Nabi* ("the Footprint of the Apostle").

digiously uplifted, as if the Fountains of the great Deep were ready for another Deluge. I remembered the inevitable expressions of surprise with which young Alpinists and ballooners, expecting the rim of the visible circle to fall away, see it rising around them in saucer-shape. The cause is simply that which breaks the stick in water, and which elevates the Shárr every morning—Refraction.

After a march of seven hours (= twenty-two miles), we debouched, *viâ* the Wady Hárr, upon our old Sharm, the latter showing, for the first time since its creation, two war-steamers, with their "tender," a large Sambúk. The boats did not long keep us waiting; and we were delighted to tread once more the quarter-deck of the corvette *Sinnár*. Captain Ali Bey Shukri's place had been taken by Captain Hasan-Bey, an Osmanli of Cavala who, having been forty-eight years in the service, sighed for his pension. He did, however, everything in his power to make us feel "at home;" and the evening ended with a *fantasia* of a more pronounced character than anything that I had yet seen.*

RÉSUMÉ OF THE MARCH THROUGH EASTERN OR CENTRAL MIDIAN.

Our journey through Eastern or Central Midian lasted eighteen days (February 19—March 8), with

* "The Gold-Mines of Midian," Chap. XI.

an excursion of six (March 13—18) to its apex, the mighty Shárr, which I would add to our exploration of Central Midian. Despite enforced slow marches at the beginning of the first section, we visited in round numbers, according to my itinerary, 197 miles: Lieutenant Amir's map gives a linear length of 222 miles, not including the offsets. The second part covered fifty-five miles, besides the ascent of the mountain to a height of about five thousand feet: the mapper also increased this figure to 59⅔. Thus the route-line shows a grand total of 252 to 281⅔ in direct statute miles. The number of camels engaged from Shaykhs 'Alayán and Hasan was sixty-one; and the hire, according to Mr. Clarke, represented £147 6*s.* 6*d.*, not including the £40 of which we were plundered by the bandit Ma'ázah. The ascent of the Shárr also cost £40, making a grand total of £187 6*s.* 6*d.*

The march to the Hismá gave us a fair idea of the three main formations of Madyan, which lie parallel and east of one another:—1. The sandy and stony maritime region, the foot-hills of the Ghâts, granites and traps with large veins and outcrops of quartz; and Wadys lined with thick beds of conglomerate. 2. The Jibál el-Tihámah, the majestic range that bounds the seaboard inland, with its broad valleys and narrow gorges forming the only roads. 3. The Jibál el-Shafah, or interior

ridge, the "lip" of North-Western Arabia; in fact, the boundary-wall of the Nejd plateau.

The main object of this travel was to ascertain the depth from west to east of the quartz-formations, which had been worked by the Ancients. I had also hoped to find a virgin region lying beyond El-Harrah, the volcanic tract subtending the east of the Hismá, or plateau of New Red Sandstone. We ascertained, by inquiry, that the former has an extent wholly unsuspected by Dr. Wallin and by the first Expedition; and that a careful examination of it is highly desirable. But we were stopped upon the very threshold of the Hismá by the Ma'ázah, a tribe of brigands which must be subjected to discipline before the province of Madyan can be restored to its former status.

This northern portion had been visited by Dr. Wallin; the other two-thirds of the march lay, I believe, over untrodden ground. We brought back details concerning the three great parallel Wadys; the Salmá, the Dámah, that "Arabian Arcadia," and the 'Aslah-Aznab. We dug into, and made drawings and plans of, the two principal ruined cities, Shuwák and Shaghab, which probably combined to form the classical Σόακα; and of the two less important sites, El-Khandaki and Umm Ámil.

The roads of this region, and indeed of all Midian, are those of Iceland without her bogs and

snows: for riding considerations we may divide them into four kinds:—

1. *Wady*—the Fiumara or Nullah; called by travellers "winter-brook" and "dry river-bed." It is a channel without water, formed, probably, by secular cooling and contraction of the earth's surface, like the fissures which became true streams in the tropics, and in the higher temperate zones. Its geological age would be the same as the depressions occupied by the ocean and the "massive" eruptions forming the mountain-skeleton of the globe. Both the climate and the vegetation of Midian must have changed immensely if these huge features, many of them five miles broad, were ever full of water. In modern days, after the heaviest rains, a thin thread meanders down a wilderness of bed.

The Wady-formation shows great regularity. Near the mouth its loose sands are comfortable to camels and distressing to man and mule. The gravel of the higher section is good riding; the upper part is often made impassable by large stones and overfalls of rock; and the head is a mere *couloir*. Flaked clay or mud show the *thalweg;* and the honeycombed ground, always above the line of highest water, the homes of the ant, beetle, jerboa, lizard, and (*Girdi*) rat, will throw even the cautious camel.

2. *Ghadîr*—the basin where rain-water sinks. It

is mostly a shining bald flat of hard yellow clay, as admirable in dry as it is detestable in wet weather.

3. *Majrá*—here pronounced "Maghráh"*—the divide; literally, the place of flowing. It is the best ground of all, especially where the yellow or brown sands are overlaid by hard gravel, or by a natural metalling of trap and other stones.

4. *Wa'r*—the broken stony surface, over which camels either cannot travel, or travel with difficulty: it is the horror of the Bedawi; and, when he uses the word, it usually means that it causes man to dismount. It may be of two kinds; either the *Majrá* proper ("divide") or the *Nakb* ("pass"), and the latter may safely be left to the reader's imagination.

The partial ascent of the mighty Shárr gave an admirable study of the mode in which the granites have been enfolded and enveloped by the later eruptions of trap. Nor less curious, also, was it to remark how, upon this Arabian Alp, vegetation became more important; increasing, contrary to the general rule, not only in quantity but in size, and changing from the date and the Daum to the strong-smelling *Ferula*, the homely hawthorn, and the tall and balmy juniper-tree. There is game, ibex and leopard, in these mountains; but the traveller, unless a man of leisure, must not expect to shoot or even to sight it.

* See Chap. XI.

CHAPTER XIV.

DOWN SOUTH—TO EL-WIJH—NOTES ON THE QUARANTINE—THE HUTAYM TRIBE.

THERE remained work to do before we could leave El-Muwaylah. The two Shaykhs, 'Alayán and Hasan el-'Ukbi, were to be paid off and dismissed with due ceremony; provisions were to be brought from the fort to the cove; useless implements to be placed in store; mules to be embarked—no joke without a pier!—and last, but not least, the ballastless *Mukhbir* was to be despatched with a mail for Suez. The whole Expedition, except only the sick left at the fort, was now bound southwards. The Sayyid and our friend Furayj accepted formal invitations to accompany us: Bukhayt, my "shadow," with Husayn, *chef* and romancer-general, were shipped as their henchmen; and a score of soldiers and quarrymen represented the escort and the working-hands. Briefly, the *Sinnár*, though fretting her vitals out at the delay, was detained

two days (March 19—20) in the Sharm Yáhárr. Amongst other things that consoled us for quitting the snug dock, was the total absence of fish. At this season the shoals leave the coast, and gather round their wonted spawning-grounds, the deep waters near the *Sha'b* ("reefs"), where they find luxuriant growths of seaweed, and where no ships disturb them.

Bidding a temporary adieu to our old fellow-voyagers on board the *Mukhbir*, including the excellent engineer, Mr. David Duguid, we steamed out of the quiet cove, at a somewhat late hour (6.30 a.m.) on March 21st; and, dashing into the dark and slaty sea, stood to the south-east. For two days the equinoctial weather had been detestable, dark, cloudy, and so damp that the dry and the wet bulbs showed a difference of only 4°—5°. This morning, too, the fire of colour had suddenly gone out; and the heavens were hung with a gloomy curtain. The great Shárr, looming unusually large and tall in the Scandinavian mountain-scene, grey of shadow and glancing with sun-gleams that rent the thick veils of mist-cloud, assumed a manner of Ossianic grandeur. After three hours and a half we were abreast of Zibá, around whose dumpy tower all the population had congregated. Thence the regular coralline bank, whose beach is the *Bab*, runs some distance down coast, allowing passage to our ugly old

friend, Wady Salmá. The next important mouth is the Wady 'Amúd, showing two Sambúks at anchor, and a long line of vegetation like the palm-strips of the 'Akabah Gulf: this valley, I have said, receives the Mutadán, into which the Abú Marwah gorge discharges.*

It would appear that this "'Amúd" represents the "Wady el-'Aúníd," a name utterly unknown to the modern Arabs, citizens and Bedawin, at least as far south as El-Haurá. Yet it is famed amongst mediæval geographers for its fine haven with potable water; and for its flourishing city, where honey was especially abundant. El-Idrísí settles the question of its site by placing it on the coast opposite the island *El-Na'mán* (Nu'mán), but can El-Idrísí be trusted? Sprenger (p. 24), induced, it would appear, by similarity of sound, and justly observing that in Arabic the letters Ayn and Ghayn are often interchanged, would here place the Ῥαννάθου κώμη (Rhaunathi Vicus) of Ptolemy (north lat. 25° 40'). According to my friend, also, the Ras Abú Masárib, the long thin point north of which the Wady Dámah, half-way to the Wady Azlam, falls in, represents the Χερσόνησος Ἄκρα (Chersónesi Extrema) on the same parallel. I cannot help suspecting that both lie further south —in fact, somewhere about El-Haurá.†

* Chap. XII. † Chap. XV.

Here the maritime heights, known as the *Jibál* (" Mountains " of the) *Tihámat-Balawiyyah* (of " the Baliyy tribe "), recede from the sea, and become mere hills and hillocks; yet the continuity of the chain is never completely broken. At noon we slipped into the channel, about a mile and a half broad, which separates the mainland from the Jebel (" Mount ") Nu'mán, as the island is called: so the Arabs speak of *Jebel* (never *Jeztrat*) Hassáni.* The surface of the water was like oil after the cross seas on all sides, the tail of an old gale which the Arab pilots call *Bahr madfún* (" buried sea "), corresponding with the Italian *mar vecchio.* On our return northwards we landed upon Nu'mán, whose name derives from the red-flowered *Euphorbia retusa;* bathed, despite the school of sharks occupying the waters around; collected botany, and examined the ground carefully. Like the Dalmatian Archipelago, it once formed part of the mainland, probably separated by the process that raised the maritime range. The rolling sandy plateau and the dwarf Wadys are strewed with trap and quartz, neither of which could have been generated by the new sandstones and the yellow corallines. It has two fine bays, facing the shore and admirably defended from all winds; the southern not a little resembles Sináfir-cove.

* Chap. XV.

The "top," or dwarf plateau, commands a fine view of the coast scenery; the "Pins" of the Shárr; the Mutadán Mountain, twin ridges of grey white granite, and, further south, the darker forms of Raydán and Zigláb. Here, during springtide, the Huwaytát transport their flocks in the light craft called *Katirah*, and feed them till the pasture is browsed down. We made extensive inquiries, but could hear of no ruins. Yet the islet, some three to four miles long by one broad, forming a natural breakwater to the coast, is important enough to bear, according to Sprenger, a classical name, the Τιμαγένους Νῆσος (Timagenis Insula) of Ptolemy. If this be the case, either the Pelusian or his manuscripts are greatly in error. He places the bank in north lat. 25° 45′, whilst its centre would be in north lat. 27° 5′; and the sixty miles of distance from the coast, evidently the blunder of a copyist, must be reduced to a maximum of three.

Passing another old friend, the Aslah-Aznab, down whose head we had ridden to Ṣhaghab, about two p.m. we steamed along the mouth of the Wady Azlam, the Ezlam of Wellsted,* which he unduly makes the southern frontier of the Huwaytát, and the northern of the Baliyy tribes. Beyond it is the gape of the once populous Wady Dukhán—of "the

* Vol. ii. Chap. X. I have also quoted him in "The Gold-Mines of Midian," Chap. VI.

(furnace?) Smoke"—faced by a large splay of tree-grown sand. Ruins are reported in its upper bed. Beyond Marsá Zubaydah (not *Zebaider*), the sea is bordered by the red-yellow coast-range; and the fretted sky line of peaks and cones, "horses" and "hogs'-backs," is cut by deep valleys and drained by dark "gates." The background presents a long, regular curtain of black hill, whose white sheets and veins may be granite and quartz. We were then shown the Mínat el-Marrah, one of the many Wady-mouths grown with vegetation; and here the ruins El-Nabagah (Nabakah) are spoken of. At four p.m. we doubled the Ras Labayyiz (not *Lebayhad*), a long flat tongue projecting from the coast-range, and defending its valley to the south. In the *Fara't* or upper part, some five hours' march from the mouth, lie important remains of the Mutakkadimín ("anciénts"). The report was confirmed by an old Arab Básh-Buzúk at El-Wijh; he declared that in his youth he had seen a tall furnace, and a quantity of scoriæ from which copper could be extracted, lying northwards at a distance of eighteen hours' march and five by sea.

The next important feature is the Wady Salbah, the *Telbah* of the Chart, up whose inland continuation, the Wady el-Nejd, we shall travel. Here the coast-range again veers off eastward; and the regular line is cut up into an outbreak of dwarf

cones, mere thimbles. Above the gloomy range that bounds it southwards, appear the granitic peaks and "Pins" of Jebel Libn, gleaming white and pale in the livid half-light of a cloudy sunset. After twelve hours' steaming over seventy to seventy-two knots of reefy sea, we ran carefully into the Sharm Dumayghah.* This lake-like, land-locked cove is by far the best of the many good dock-harbours which break the Midian coast. Its snug retreat gave hospitality to half a dozen Juhayni Sambúks, fishers and divers for mother-of-pearl, riding beyond sight of the outer world, and utterly safe from the lighthouse dues of El-Wijh.

I resolved to pass a day at these old quarters of a certain Háji 'Abdullah. The hydrographers have given enlarged plans of Yáhárr and Jibbah, ports close to each other; while they have ignored the far more deserving Sharm Dumayghah. Distant only thirty miles of coasting navigation, a line almost clear of reefs and shoals, it is the natural harbour for the pilgrim-ships, which ever run the danger of being wrecked at El-Wijh; and it deserves more notice than we have hitherto vouchsafed to it. The weather also greatly improved on the next day (March 22nd): the cloud-canopy, the excessive

* My "Pilgrimage" (Vol. I. Chap. XI.) called it "Sherm Damghah": it is the "Demerah" of Moresby and the "Demeg" of 'Ali Bey el-'Abbási (the unfortunate Spaniard Badia).

moisture, and the still sultriness which had afflicted us since March 19th, were in process of being swept away by the strong, cool, bright norther.

The survey of the Egyptian officers shows an oval extending from north-west to south-east, with four baylets or bulges in the northern shore. The length is upwards of a knot, and the breadth twelve hundred yards. It may be described as the embouchure of the Wady Dumayghah, which falls into its head, and which, doubtless, in olden times, when the land was wooded, used to roll a large and turbulent stream. As is often seen on this coast, the entrance is defended by a natural breakwater which appears like a dot upon the Chart. Capped with brown crust, falling bluff inland, and sloping towards the main, where the usual stone-heaps act as sea-marks, this bank of yellowish-white coralline, measuring 310 mètres by half that width, may be the remains of the bed in which the torrents carved out the port. The northern inlet is a mere ford of green water: my "Pilgrimage" made the mistake of placing a fair-way passage on either side of the islet. The southern channel, twenty-five fathoms deep and three hundred mètres broad, is garnished on both flanks with a hundred mètres of dangerous shallow, easily distinguished by green blazoned upon blue. The bay is shoal to the south-east; the best anchorage for ships lies to the north-west, almost touching

land. A reef or rock is reported to be in the middle ground, where we lay with ten fathoms under us: it was seen, they say, at night, by the aid of lanterns; but next morning Lieutenants Amir and Yusuf were unable to find it. Native craft usually make fast in three fathoms to a lumpy natural mole of modern sandstone, north of the entrance: a little trimming would convert it into a first-rate pier.

At this place we landed to prospect the country, and to gather information from the Sambúk crews before they had time to hoist sail and be off. The owners of the land are *not* Juhaynah, the "Wild Men" with whom the Rais of the *Golden Wire* had threatened us in 1853. The country belongs to the Baliyy; now an inoffensive tribe well subject to Egypt, mixed with a few Kura'án-Huwaytát and Karáizah-Hutaym. The fishermen complained that no fish was to be caught, and the strong tides, setting upon the stony flank of the mole, had broken most of the shells, not including, however, the oysters. The usual eight-ribbed turtle appeared to be common. On the sands to the north, M. Lacaze picked up a large old and bleached skull, which went into my collection; we failed to find any neighbouring burial-ground. Striking inland, however, towards the dotted square, marked "Fort (ruin)" in the Chart, we came upon an ancient cemetery to the north of the bay, and concluded that

these graves had been mistaken for remains of building.

We then bent eastward towards the Jibál el-Salbah, and examined the two dwarf valleys which, threading the heights, feed the Wady Dumayghah. That to the south showed us a perfectly familiar formation; conglomerates of water-rolled pebbles in the lower levels, and hills of the normal dark porphyries, with large quartz-seams of many colours trending in every direction. The mouth of the northern gorge was blocked by a vein of finely crystallized carbonate of lime, containing geodes and bunches. The taste is astringent, probably from the alumina; and it is based upon outcrops of a sandy calcaire apparently fit for hydraulic cement. The only novelty in the vegetation was the *Fashak*-tree, a creeper like a gigantic constrictor, with sweet yellow wood somewhat resembling liquorice.

Signs of Arab everywhere appeared, but there were no tents. Consequently we were unable to ascertain the extent of the water-supply—an important matter if this is to become the port of El-Wijh. The Sambúks might bring it, but the people on shore would be dependent upon what they can find. The Hajj-road, running some miles inland, is doubtless supplied with it. Even, however, were the necessary wanting, the pilgrim-ships, whilst taking refuge here, could easily transport it from the

south. Shaykh Furayj pointed out to us the far northern blue peaks of the 'Amúd Zafar, in whose branch-Wady lie the ruins of M'jirmah. The day ended with a sudden trembling of the ship, as if straining at anchor; but the crew was again performing *fantasia*, and the earthquake or seaquake rolled unheededly away. Apparently the direction was from north to south: I noted the hour, 9.10 p.m., and the duration, twenty seconds. According to the Arabs the *Zilzilah* is not uncommon in Midian, especially about the vernal equinox: on this occasion it ended the spell of damp and muggy weather which began on March 19th, and which may have been connected with it.

The survey soundings were not finished till nearly eight a.m. (March 23rd), when the old corvette swung round on her heel; and, with the black hills of Salbah to port, resumed her rolling, rollicking way southwards. Her only ballast consisted of some six hundred conical shot, or twelve tons for a ship of eight hundred. After one hour of steaming (= seven miles) we passed the green mouth of the Wady 'Antar, in whose *Istabl* ("stable"), or upper valley-course, the pilgrimage-caravan camps. It drains a small inland feature to the north-east, the true "Jebel 'Antar," which the Hydrographic Chart has confounded with the great block, applying, moreover, the term *Istabl* to the height instead

of the hollow. This Jebel Libn, along which we are now steaming, is a counterpart on a small scale, a little brother, of the Shárr, measuring 3733 instead of 6000 to 6500 feet. We first see from the north a solid block capped with a mural crown of three peaks. When abreast of us the range becomes a tall, fissured, and perpendicular wall: this apical comb, bluff to the west, reposes upon a base sloping, at the angle of rest, to the environing sandy Wady. To complete the resemblance, even the queer "Pins" are not wanting; and I should expect to find in it all the accidents of the giant of El-Muwaylah.

The complexion of the Libn, which the people pronounce "Libin," suggests grey granite profusely intersected with white quartz: hence, probably, the name, identical with Lebanon and Libanus—"the Milk Mountain." The title covers a multitude of peaks: the Bedawin have, doubtless, their own terms for every head and every hollow. The citizens comprehensively divide the block into two, *El-Áli* ("the Upper") being its southern, and *El-Asfal* ("the Lower") its northern, section. It is said to abound in water; and a *Nakhil* ("date-grove") is described as growing near the summit. The Hutaym, who own most of it, claim the lover and hero-poet, 'Antar, as one of their despised tribe—hence, probably, his connection with the adjoining mountain and "the stable."

"Jebel Libin" is the great feature of the Tihámat-Balawíyyah; for many days it will appear to follow us, and this is the proper place for assigning its rank and status to it. About El-'Akabah, the northern head of the Ghâts or coast-range, we have prospected the single chain of *Jebel Sharâ'*; the "Sa'ar of the tribes of the Shasu" (Bedawin)* in the papyri, and the Hebrew Mount Seir, the "rough" or "rugged." Further south we have noted how this tall eastern bulwark of the great Wady el-'Arabah bifurcates; forming the *Shafah* chain to the east, and westward of it, in Madyan Proper, the *Jibál el-Tihámah*, of which the Shárr is perhaps the culmination. We have noted the accidents of the latter as far as Dumayghah Cove, and now we descry in the offing the misty forms—how small they look!—of the *Jebel el-Ward*; the *Jibál el-Safhah*; the two blocks, south of the Wady Hamz, known as the *Jibál el-Rál*; and their neighbours still included in the Tihámat-Balawíyyah. Lastly, we shall sight, behind El-Haurá, the *Abú Ghurayr* and a number of blocks which, like the former, are laid down, but are not named, in the Chart.

Beyond El-Haurá the chain stretches southwards its mighty links with smaller connections. The first is the bold range *Jebel Radwah*, the "Yambo Hills" of the British sailor, some six thousand feet high and

* See "The Gold-Mines of Midian," Chap. VII.

lying twenty-five miles behind the new port.* Passing it to left on the route to El-Medínah, I heard the fables which imposed upon Abyssinian Bruce: "All sorts of Arabian fruits grew to perfection on the summit of these hills; it is the paradise of the people of Yenbo, those of any substance having country-houses there." This was hardly probable in Bruce's day, and now it is impossible. The mountain is held by the Beni Harb, a most turbulent tribe, for which see my "Pilgrimage."† Their head Shaykh, Sa'd the Robber, who still flourished in 1853, is dead; but he has been succeeded by one of his sons, Shaykh Hudayfah, who is described with simple force as being a "dog more biting than his sire." Between these ill-famed haunts of the Beni Harb and Jeddah rises the *Jebel Subh*, "a mountain remarkable for its magnitude" (4500 feet), inhabited by the Beni Subh, a fighting clan of the "Sons of Battle."

The largest links of these West-Arabian Ghâts are of white-grey granite, veined and striped with quartz; and they are subtended inland by the por-

* The old being the classical Ἰαμβία κώμη (Iambia Vicus), in north lat. 24°. This is Yambú' el-Nakhil, in Ptolemy's time a seaport, now fifteen miles to the north-east (north lat. 24° 12′ 3″ ?) of the modern town. The latter lies in north lat. 24° 5′ 30″ (Wellsted, ii. 11), and, according to the Arabs, six hours' march from the sea.

† Vol. I. pp. 364, 365.

phyritic traps of the Jibál el-Shafah, which we shall trace to the parallel of El-Hamz, the end of Egypt. I cannot, however, agree with Wellsted (II. xii.) that the ridges increase in height as they recede from the sea; nor that the veins of quartz run horizontally through the "dark granite." The greater altitudes (three to six thousand feet) are visible from an offing of forty to seventy miles; and they are connected by minor heights: some of these, however, are considerable, and here and there they break into detached pyramids. All are maritime, now walling the shore, like the Tayyib Ism; then sheering away from it, where a broad "false coast" has been built by Time.

These western Ghâts, then, run down, either in single or in double line, the whole length of occidental Arabia; and, meeting a similar and equally important eastern line, they form a mighty nucleus, the mountains of El-Yemen. After carefully inspecting, and making close inquiries concerning, a section of some five hundred miles, I cannot but think that the mines of precious ores, mentioned by the mediæval Arabian geographers,* lay and lie in offsets from the flanks either of the maritime or the inland chain; that is, either in the Tihámah, the coast lowlands, or in the El-Nejd, the highland plateau of the interior.

* "The Gold-Mines of Midian," Chap. IX.

What complicates the apparently simple ground is the long line of volcanic action which, forming the eastern frontier of the plutonic granites and of the modern grits, may put forth veins even to the shores of the 'Akabah Gulf and the Red Sea.* The length, known to me by inquiry, would be about three degrees between north lat. 28° and 25°, the latter being the parallel of El-Medínah; others make them extend to near Yambú', in north lat. 24° 5'. They may stretch far to the north, and connect, as has been suggested, with the Syrian centres of eruption, discovered by the Palestine Exploration. I have already explained† how and why we were unable to visit "the Harrah" lying east of the Hismá; but we repeatedly saw its outlines, and determined that the lay is from north-west to south-east. Further south, as will be noticed at El-Haurá, the vertebræ curve seawards or to the south-west; and seem to mingle with the main range, the mountains of the *Tihámat-Jahantyyah* ("of the Juhaynah"). Thus the formation assumes an importance which has never yet been attributed to it; and the five several "Harrahs," reported to me by the Bedawin, must be studied in connection with the mineralogical deposits of the chains in contact with them. It must

* Chap. VI. describes one of the sporadic (?) outcrops near Tayyib Ism; and Chap. IX notices the apparently volcanic sulphur-mount near El-Muwaylah.

† See Chap. IX.

not be forgotten that a fragment of porous basalt, picked up by the first Expedition near Makná, yielded a small button of gold.*

Dreadfully rolled the *Sinnár*, as she ran close inshore before the long heavy swell from the north-west, and the old saying, *Bon rouleur, bon marcheur*, is cold consolation to an active man made to idle *malgré lui.* This section of the coast, unlike that to the north, is remarkably free from reefs. A little relief was felt while sheltered by the short tract of channel between the mainland and the shoals. But the nuisance returned in force as, doubling the Ras Muraybit (not *Marabat*), we sighted the two towers of El-Wijh, both beflagged, the round *Burj* of the fort, and the cubical white-washed lighthouse crowning its rocky point. And we were quiet once more when the *Sinnár*, having covered the thirty miles in four hours and thirty minutes, cast anchor in the usual place, south-east of the northern jaw. The main objection to our berth is that the prevailing north wind drives in a rolling sea from the open west. The log showed a total of 102 miles between the Sharms Yáhárr and El-Wijh, or 107 from the latter to El-Muwaylah.

"El-Wijh," meaning the face, a word which the Egyptian Fellah perverts to "Wiṣh," lies in north lat. 26° 14′. It is the northernmost of the townlets

* "The Gold-Mines of Midian," Chap. XII.

on the West Arabian shore, which gain importance as you go south; *e.g.*, Yambú', Jeddah, Mocha, and Aden. It was not wholly uncivilized during my first visit, a quarter of a century ago, when I succeeded in buying opium for feeble patients. Distant six stations from Yambú', and ten from El-Medínah, it has been greatly altered and improved. The pilgrim-caravan, which here did penance of quarantine till the last two years, has given it a masonry pier for landing the unfortunates to encamp upon the southern or uninhabited side of the cove. A tall and well-built lighthouse, now five years old, boasts of a good French lantern, wanting only soap and decent oil. Finally, guardhouses and bakehouses, already falling to ruins like the mole, and an establishment for condensing water, still kept in working order, are the principal and costly novelties of the southern shore.

The site of El-Wijh is evidently old, although the ruins have been buried under modern buildings. Sprenger (p. 21) holds the townlet to be the port of "Egra, a village" (*El-Hajar*, or "the town, the townlet"?) "in the territory of Obodas," whence, according to Strabo (xvi. c. 4, § 24), Ælius Gallus embarked his baffled troops for Myus Hormus.* Formerly he believed El-Aúnid to be Strabo's "Egra," the haven for the north; as El-Haurá was for the south,

* See "The Gold-Mines of Midian," Chap. VIII.

and El-Wijh for the central regions. Pliny (vi. 32) also mentions the "Tamudæi, with their towns of Domata and Hegra, and the town of Badanatha." It is generally remarked that "Egra" does not appear in Ptolemy's lists; yet one of the best texts (Nobbe, Lipsia, 1843) reads Ἔγρα, instead of the "Negran" which Pirckheymerus (Lugduni, MDXXXV.) and others placed in north lat. 26°.

My learned friend writes to me—"El-Wijh, on the coast of Arabia, is opposite to Qoçayr (El-Kusayr), where Ælius Gallus landed his troops. We know that 'Egra' is the name of a town in the interior, and it was the constant habit to call the port after the capital of the country, *e.g.*, Arabia Emporium = Aden. We have now only to inquire whether El-Wijh had claims to be considered the seaport of El-Hijr." This difficulty is easily settled. El-Wijh is still the main, indeed the only, harbour in South Midian; and, during our stay there, a large caravan brought goods, as will be seen, from the upper Wady Hamz.

Under the influence of the quarantine, El-Wijh, the town on the northern bank of its cove, has blossomed into a *hauteville*, dating from the last dozen years. The ancient *basseville*, probably the site of many former settlements, is now used chiefly for shops and stores. Another and a more pretentious mosque has supplanted the little old *Záwiyah*

("chapel") with its barbarous minaret, whose finial, a series of inverted crescents, might be taken for a cross; while a *Jámi'* or "cathedral," begun in the upper town, has stopped short through want of funds. Some of the best houses now extend towards the northern point. As usual in Arab settlements, they are long, tall claret-cases of coral-rag and burnt lime; flat-roofed, whitewashed in front, and provided with wooden doors and shutters. Lastly, on the slope still appears the smoky coffee-shed that witnessed the memorable encounter between its surly proprietor and "Saad the Devil." *

Stony ramps, stiff as those of Gibraltar, connect the low with the high town, the cool breezy new settlement upon the crest of the northern cliff, whose noble view of the Jebel Libn and the palm-scattered Wady el-Wijh were formerly monopolized by the fort and its round tower. This work, only sixty-five years old, now stands so perilously near the undermined edge of the rock-cornice, that some day it will come down with a run. It is used by the garrison, and serves as a jail; but lately a Bedawi prisoner, like a certain Mamlúk Bey, jumped down the precipitous cove-face and effected his escape. Behind it are the "Doctors' Quarters," empty and desolate, because the sanitary officers have been removed. They are sheds of white-

* "Pilgrimage," Vol. I. Chap. XI.

washed boarding, brought from the Crimea, like those of the Suez Canal; and comfortably distributed into Harem, kitchens, offices, and other necessaries.

The inhabitants of El-Wijh may number twelve hundred, without including chance travellers and the few wretched Bedawin, Hutaym and others, who pitch their black tents, like those of Alexandrian "Ramleh," about and beyond the town. The people live well; and the merchants are large and portly men, who evidently thrive upon meat and rice. Flesh is retailed in the bazar, and mutton is cheap, especially when the Bedawin are near; a fine large sheep being dear at ten shillings. Water is exceptionally abundant, even without the condenser's aid. The poorer classes and animals are watered at the pits and the two regular wells near the valley's mouth, half an hour's trudge from the town. The wealthy are supplied by the inland fort, which we shall presently visit: the distance going and coming would be about four slow hours, and the skinful costs five Khurdah, or copper piastres = three halfpence. The inner gardens grow a small quantity of green meat: water-melons are brought from Yambú' (?); opium and Hashísh abound, but no spirits are for sale since the one Greek *Bakkál*, or petty shopkeeper, "made tracks." He borrowed from a certain Surúr Selámah, negro

merchant and head miser, 150 napoleons, in order to buy on commission certain bales of cotton ship-wrecked up coast; he left in pledge the keys of his miserable store, which, by-the-by, *la loi* refuses to open; he was never seen again, and poor rich Surúr is in the depths of despair.

One of the small industries of El-Wijh is the pearl trade. Mr. Clarke bought for £4 (twenty dollars) a specimen of good round form but rather yellow colour; and presently refused £5 for it. Those of pear-shape easily fetch thirty-six to forty dollars. Turquoises set in sealing-wax are sold cheap by the returning Persian pilgrims: the *Zib el-Bahr* ("Sea-wolf"), an Egyptian cruiser, had carried off the best shortly before our arrival. The people speak of an *'Akík* ("carnelian") which, rubbed down in vinegar, enters into the composition of a favourite philtre—we could not, however, find any for sale. On our return, an 'Anezah caravan of some ninety camels, driven by a hundred or so of spearmen and matchlockmen, came in loaded with valuable *Samn* or clarified butter: the fact suggests that the time has come for establishing a *Gumruk* ("custom-house") at El-Wijh. Another source of wealth will be *El-Mellâhah*, "the salina," along which we shall travel: every man who has a donkey may carry off what he pleases, and sell to pilgrims and Bedawin the kilogramme for four piastres copper (= one

piastre currency = five farthings). This again should be taken in hand by Government; and regular "salterns," like those of Triestine Capodistria, would greatly increase the quantity. Nothing can be better than the quality except rock-salt. There is another salina about one hour down the coast, formed by a reef, near the Ras el-Ma'llah.

The afternoon of arrival was spent in receiving visits. The *Muháfiz* or "civil governor," Hasan Bey, calls himself a Circassian: he is a handsome old man, whose straight features suggest the Greek slave, and who served in the Syrian campaigns under Ibrahim Pasha. Forty years ago he left his home; he has been here six years, and yet he knows absolutely nothing of the interior. He ought to reside at the inland fort, but he prefers the harbour-town; and he had not the common-sense to ride out with us. He shows his zeal by inventing obstacles; for instance, he suggests that the Bedawin should leave, during our journey, hostages at the fort: this is wholly unnecessary, and means only piastres. The *Yuzbáshi*, or "military commandant," Sid-Ahmed Effendi, has charge of the forty-five regulars, half a company, who garrison the post and outpost. The chief merchant, who afterwards volunteered to be our travelling companion, is Mohammed Shahádah, formerly *Wakil* ("agent") of the fort, a charge now abolished by a pound-foolish policy: he

is an honest and intelligent, a charitable and companionable man, who has travelled far and wide over the interior, and who knows the tribes by heart. I strongly recommended him to his Highness the Viceroy. His brothers, Bedawi and Ali Shahádah, are also open-handed to the poor; very unlike their brother-in-law Surúr Selámah, formerly a slave to the father of Mohammed Selámah whom we had met at Zibá. The list of notables ends with the Sayyid Ibrahim El-Mara'í, and with the sturdy Abd el-Hakk, pearl and general merchant. All recognized our friend the Sayyid, whom even the "gutter-boys" saluted by name; and, although the Arab manner is blunt and independent, all showed perfect civility. It is needless to say that our late work, and our future plans, were known to everybody at El-Wijh as well as to ourselves; and that the tariffs of pay and hire, established in the North Country, at once became the norm of the South.

Our favourite walk at old "Egra" was to the quarantine-ground and the lighthouse. The situation of the town is by no means satisfactory, and the heavy dews of April, wetting the streets, cause frequent fevers. *En revanche*, nothing can be more healthy or exhilarating than the air of the tall plateau to the south of the cove. The quarantine-ground, with its grand view of the mountains inland, ends seawards in the Pharos that commands an horizon of blue

water. The latter, according to the charts, is one hundred and six feet above sea-level, and is theoretically visible for fourteen miles; practice would reduce this radius to ten, and the least haze to six and even five.

The lighthouse-charges are strongly objected to by the skippers of Arab fishing-boats, although very small in their case. Square-rigged vessels pay per ton twenty parahs (tariff): thus it costs a ship of five hundred tons £2 10*s.* (Turkish). The keeper, under Admiral M'Killop (Pasha), a young Greek named "Gurjí," as "George" here sounds, is assisted by a Moslem lad, Mohammed Effendi of Alexandria. They serve for three years, and they look forward to the end of them. The former also superintends the condensing establishment: this office is a sinecure, except during the three months of pilgrim-passage. The machine can distil eighteen tons per diem; and there is another water-magazine, an old paddle-wheeler moored to the beach under the town. Behind the establishment lies the pilgrim-cemetery, frequented by hyenas that prowl around the lighthouse, threatening the canine guard. I found a new use for this vermin's brain: it is administered by the fair ones at El-Wijh to jealous husbands, upon whom, they tell me, it acts as a sedative.

El-Wijh has been heard of in England as the prophylactic against the infected Hejaz. It is admi-

rably suited for quarantine purposes, and it has been abolished, very unwisely, in favour of "Tor harbour." The latter, inhabited by a ring of thievish Syro-Greek traders; backed by a wretched wilderness, alternately swampy and sandy, is comfortless to an extent calculated to make the healthiest lose health. Moreover, its climate, says Professor Palmer (p. 222), is very malarious: "owing to the low and marshy nature of the ground, there is a great deal of miasma even in the winter season." Finally, and worst of all, it is near enough to Suez for infection to travel easily. A wealthy pilgrim has only to pay a few gold pieces, his escape to the mountains is winked at; and thence he travels or voyages comfortably to Suez and Cairo. Even without such irregularities, the transmission of contaminated clothing, or other articles, would suffice to spread cholera, typhus, and smallpox. Tor is, in fact, an excellent medium for focussing and for propagating contagious disease; and its vicinity to Egypt, and consequently to Europe, suggests that it should at once be abolished.

At first I lent ear to the popular statement at El-Wijh; namely, that the visiting doctors and the resident sanitary officers naturally prefer the shorter to the longer voyage, and the nearer station to that further from home. Moreover, inasmuch as, if inclined to be dishonest, they find more opportunities in the north, it was their interest to transfer

the establishment to Tor. The local authorities, the people assured me, were induced to report that the single fort-well had run dry; that the condensers had proved a failure, and that the old steamer-magazine, into which they had poured brine, was leaky and inefficient. But what was my astonishment when, after return to Cairo, I was told that the change had been strongly advocated by the English Government?

The objections to El-Wijh are two, both equally invalid. The port is dangerous, especially when westerly winds are blowing: ships during the pilgrimage-season must bank their fires, ever ready to run out. True; but it has been shown that Sharm Dumayghah, the best of its kind, lies only thirty knots to the north. The second, want of water, or of good water, is even less cogent. We have seen that the seaboard wells supply the poorer classes and animals; and we shall presently see the Fort-wells, which, in their day, have watered caravans containing twenty to thirty thousand thirsty men and beasts. So far from the condensers being a failure, the tank still holds about twenty tons of distilled water, although it gives drink to some thirty mouths composing the establishment. Finally, the old steamer has done its duty well, and, like the proverbial Marine, is still ready to do its duty again.*

* In "The Gold Mines of Midian" (Chap. IV.) I unconsciously re-echoed the voice of the vulgar about "the harbour being bad and the water worse" at El-Wijh.

Thus the expense of laying out the quarantine-ground at El-Wijh has been pitifully wasted. That, however, is a very small matter; the neglect of choosing a proper position is serious, even ominous. Unlike Tor, nothing can be healthier or freer from fever than the pilgrims' plateau. From El-Wijh, too, escape is hopeless: the richest would not give a piastre to levant; because, if a solitary traveller left the caravan, a Bedawi bullet would soon prevail on him to stop. This, then, should be the first long halt for the "compromised" travelling northwards. When contagious disease has completely disappeared, the second precautionary delay might be either at Tor or, better still, at the "Wells of Moses" (*'Uyun Músá*), near the head of the Suez Gulf: here sanitary conditions are far more favourable; and here supplies, including medical comforts, would be cheaper as well as more abundant. Briefly, it is my conviction that, under present circumstances, "Tor" is a standing danger, not only to Egypt, but to universal Europe.

The coast about El-Wijh is famed for shells; the numerous reefs and shoals favouring the development of the molluscs. We were promised a heavy haul by the citizens, who, however, contented themselves with picking up the washed-out specimens found everywhere on the shore: unfortunately we had no time to superintend the work. A caseful

was submitted to the British Museum, and a few proved interesting on account of their locality. The list printed at the end of this chapter was kindly supplied to me by Mr. Edgar A. Smith, superintendent of the Conchological Department.

I will conclude this chapter with a short notice of the Hutaym or Hitaym, a people extremely interesting to me. They are known to travellers only as a low caste. Wellsted (II. xii.) tells us that the "Huteimi," whom he would make the descendants of the Ichthyophagi described by Diodorus Siculus and other classics, are noticed by several Arabian authorities. "In one, the Kitab el-Mush Serif* (Musharrif?), they are styled 'Hooteïn,' the descendants of 'Hooter,' a servant of Moses." He also relates a legend that the Apostle of Allah pronounced them polluted, because they ate the flesh of dogs. Others declare that they opposed Mohammed when he was rebuilding the *Ka'bah;* and thereby drew upon themselves the curse that they should be held the "basest of the Arabs." These tales serve to prove one fact, the antiquity of the race.

The Hutaym, meaning the "Broken" (tribe), hold, in Midian and Egypt, the position of Pariahs, like the Akhdám ("serviles"), or Helots, of Maskat

* This style of writing reminds me of the *inch allah* (Inshallah!) in the pages of a learned "war correspondent"—a race whose naïve ignorance and whose rare self-sufficiency so completely perverted public opinion during the Russo-Turkish war of 1877–78.

and El-Yemen. No clan of pure Arabs will intermarry with them; and when the Fellahs say, *Tatahattim* (= *tatamaskin* or *tatazalli*), they mean, "Thou cringest, thou makest thyself contemptible as a Hutaymi." Moreover, they must pay the dishonouring *Akhâwat*, or "brother-tax," to all the Bedawin amongst whom they settle.

The Hutaym are scattered as they are numerous. They have extended, probably in ancient times, to Upper Egypt, and occupy parts of Nubia; about Sawákin they are an important clan. They number few in the Sinaitic Peninsula and in Midian, but they occupy the very heart of the Arabian Peninsula. Those settled on Jebel Libn, we have seen, claim as their kinsman the legendary 'Antar, who was probably a negro of the noble Semitic stock. A few are camped about El-Wijh; and they become more important down coast. In the eastern regions bordering upon Midian, they form large and powerful bodies, such as the Nawámisah and the Sharárát, whose numbers and bravery secure for them the respect of their fighting equestrian neighbours, the Ruwalá-'Anezah.

Like other Arabs, the Hutaym tribe is divided into a multitude of clans, septs, and families, each under its own Shaykh. All are Moslems, after the Desert pattern, a very rude and inchoate article. Wellsted knew them by their remarkably broad

chins: the Bedawi recognize them by their look; by their peculiar accent, and by the use of certain peculiar words, as *Harr!* when donkey-driving. The men are unwashed and filthy; the women walk abroad unveiled, and never refuse themselves, I am told, to the higher blood.

The Arabs of Midian always compare the Hutaym with the *Ghagar* (Ghajar) or Gypsies of Egypt; and this is the point which gives the outcasts a passing interest. I have not yet had an opportunity of carefully studying the race; nor can I say whether it shows any traces of skill in metal-working. Meanwhile, we must inquire whether these Helots, now so dispersed, are not old immigrants of Indian descent, who have lost their Aryan language, like the Egyptian Ghajar. In that case they would represent the descendants of the wandering tribes who worked the most ancient *ateliers*. Perhaps they may prove to be congeners of the men of the Bronze Age, and of the earliest waves of Gypsy-immigration into Europe.

NOTE.

A list of the shells collected by the second Khedivial Expedition on the shore of Midian and the Gulf of 'Akabah, by Edgar A. Smith, Esq., British Museum.

I. GASTROPODA.

1. Conus textile, *Linné.*
2. „ sumatrensis, *Hwass.*
3. „ catus var., *Hwass.*

4. Conus larenatus, *Hwass.*
5. „ hebræus, *Linné.*
6. „ ividus (?), *Hwass.*
6A. „ ceylanensis, *Hwass.*
7. Terebra maculata, *Linné.*
8. „ dimidiata, *Linné.*
9. „ consobrina, *Deshayes.*
10. „ (Impages) cærulescens, *Lamarck.*
11. Pleurotoma cingulifera, *Lamarck.*
11A. Murex tribulus, *Linn.*
12. „ (Chicoreus) inflatus, *Lamarck.*
13. Cassidulus paradisiacus, *Reeve.*
14. Nassa coronata, *Lamarck.*
15. „ pulla, *Linné.*
16. Engina (Pusiostoma) mendicaria, *Lamarck.*
17. Cantharus (Tritonidea) sp. juv.
18. Purpura hippocastanum, *Lamarck.*
19. Sistrum arachnoides, *Lamarck.*
20. „ fiscellum, *Chemnitz.*
21. „ tuberculatum, *Blainville.*
22. Harpa solida, *A. Adams.*
23. Fasciolaria trapezium, *Lamarck.*
24. Turbinella cornigera, *Lamarck.*
25. Dolium (Malea) pomum, *Linné.*
26. Triton maculosus, *Reeve.*
27. „ aquatilis, *Reeve.*
28. „ (Persona) anus, *Lamarck.*
29. Natica (Polinices) mamilla, *Linné.*
30. „ „ albula (?), *Récluz.*
31. „ (Mamilla) melanostoma, *Lamarck.*
32. Solarium perspectivum, *Linné.*
33. Cypræa arabica, *Linné.*
34. „ pantherina, *Linné.*
35. „ camelopardalis, *Perry.*
36. „ carneola, *Linné.*
37. „ scurra, *Chemnitz.*
38. „ erosa, *Linné.*
39. „ tabescens (?), *Solander.*
40. „ caurica, *Linné.*
41. „ talpa, *Linné.*

41B. Cypræa lynx, *Linné.*
42. Cerithium tuberosum, *Fabricius.*
43. Turritella torulosa (?), *Kiener.*
44. Strombus tricornis, *Lamarck.*
45. „ gibberulus, *Linné.*
46. „ floridus, *Lamarck.*
47. „ fasciatus, *Born.*
48. Pterocera truncatum, *Lamarck.*
49. Planaxis breviculus, *Deshayes.*
50. Nerita marmorata, *Reeve.*
51. „ quadricolor, *Gmelin.*
52. „ rumphii, *Récluz.*
53. Turbo petholatus, *Linné.*
54. „ chrysostoma var. (?), *Linné.*
55. Trochus (Pyramis) dentatus, *Forskâl.*
56. „ (Cardinalia) virgatus, *Gmelin.*
57. „ (Polydonta) sanguinolentus, *Chemnitz.*
58. „ (Clanculus) pharaonis, *Linné.*
59. „ (Monodonta) sp.
60. Patella variabilis (?), *Krauss.*
61. Chiton sp.
62. Bulla ampulla, *Linné.*

II. CONCHIFERA.

63. Dione florida, *Lamarck.*
64. „ sp.
65. Tellina staurella, *Lamarck.*
66. Paphia glabrata, *Gmelin.*
67. Chama Rüppellii, *Reeve.*
68. Arca (Barbatia) sp.
68A. „ (Senilia) sp.
69. Cardium leucostoma, *Born.*
70. Venericardia Cumingii, *Deshayes.*
71. Modiola auriculata, *Krauss.*
72. Pectunculus lividus, *Reeve.*
73. „ pectenoides, *Deshayes.*
74. Avicula margaritifera, *Linné.*
75. Tridacna gigas, *Linné.*

CHAPTER XV.

THE SOUTHERN SULPHUR-HILL—THE CRUISE TO EL-HAURÁ—NOTES ON THE BALIYY TRIBE AND THE VOLCANIC CENTRES OF NORTH-WESTERN ARABIA.

On the day of our arrival at El-Wijh I sent a hurried letter of invitation to Mohammed 'Afnán, Shaykh of the Baliyy tribe; inviting him to visit the Expedition, and to bring with him seventy camels and dromedaries. His tents being pitched at a distance of three days' long march in the interior, I determined not to waste a precious week at the end of the cold season; and the party was once more divided. Anton, the Greek, was left as storekeeper, with orders to pitch a camp, to collect as much *munition de bouche* as possible, and to prepare for this year's last journey into the interior. MM. Marie and Philipin, with Lieutenant Yusuf, Cook Giorji, and Body-servant Ali Marie, were directed to march along the shore southwards. After inspecting a third *Jebel el-Kibrît*, they would bring back notices of

the Wady Hamz, near whose banks I had heard vague reports of a *Gasr* (Kasr), "palace" or "castle," built by one Gurayyiṁ Sa'íd. Meanwhile, the rest of us would proceed in the *Sinnár* to El-Haurá, a roundabout cruise of a hundred miles to the south.

M. Philipin lost time in shoeing very imperfectly his four mules; and M. Marie, who could have set out with eight camels at any moment, delayed moving till March 26th. The party was composed of a single Básh-Buzúk from the fort, and two quarrymen: the Ras Káfilah was young Shaykh Sulaymán bin 'Afnán—of whom more presently—while his brother-in-law Hammád acted guide. At 6.40 a.m. they struck to the south-east of the town, and passed the two brackish pits or wells, Bir el-Isma'íl and El-Sannúsi, which supply the poor of the port. Thence crossing the broad Wady el-Wijh, they reached, after a mile's ride, *Wady Melláhah*, or "the salina." It is an oval, measuring some eighteen hundred yards from north to south: the banks are padded with brown slush frosted white; which, in places, "bogs" the donkeys and admits men to the knee. Beyond it lie dazzling blocks of pure crystallized salt; and the middle of the pond is open, tenanted by ducks and waterfowl, and visited by doves and partridges. At the lower or northern end, a short divide separates it from the sea; and the waves, during the high westerly gales, run far

inland: it would be easy to open a regular communication between the harbour and its saltern. The head is formed by the large Wady Surrah, whose many feeders at times discharge heavy torrents. The walls of the valley-mouth are marked, somewhat like the Hárr, with caverned and corniced cliffs of white, canary-yellow, and light-pink sandstone.

They then left to the right the long point Ras el-Ma'llah, fronting Mardúnah Island. Here, as at El-'Akabah and Makná, sweet water springs from the salt sands of the shore; a freak of drainage, a kind of "Irish bull" of Nature, so common upon the dangerous Somali seaboard. The tract leads to the south-east, never further from the shore than four or five miles, but separated by rolling ground which hides the main. For the same reason the travellers were unable to sight the immense development of granite-embedded quartz, which lurks amongst the hills to the inland or east, and which here subtends the whole coast-line. They imagined themselves to be in a purely Secondary formation of gypsum and conglomerates, cut by a succession of Wady-beds like the section between El-Muwaylah and 'Aynúnah. Thus they crossed the mouths of the watercourses, whose heads we shall sight during the inland march, and whose mid-lengths we shall pass when marching back to El-Wijh.

These exceedingly broad beds are divided, as usual, by long lines of Nature-metalled ground. The first important feature is the Wady Surrah, which falls into the Wady el-Wijh a little above the harbour-pier: its proper and direct mouth, *El-Gá'h* (Ká'h), or "the Hall," runs along-shore into the Melláhah. It drains the Hamíratayn, or "Two Reds;" the Hamírat Surrah in the *Rughám* or Secondary formation, and the granitic mass Hamírat el-Nabwah, where the plutonic outbreaks begin. Amongst the number of important formations are:—the *Wady el-Miyáh*, which has a large salt-well near the sea, and down whose upper bed we shall travel after leaving Umm el-Karáyát; the *Wady el-Kurr*, whose acquaintance we shall make in the eastern region; and the *Wady el-'Argah* ('Arjah). The latter is the most interesting. Near its head we shall find knots of ruins, and the quartz-reef Abá'l-Marú; while lower down the bed, on the north-east side of a hill facing the valley, Lieutenant Yusuf came upon a rock scrawled over with religious formulæ, *Tawakkaltu 'al' Allah* ("I rely upon Allah"), and so forth, all in a comparatively modern Arabic character. The inscriptions lie to the left of the shore road, and to the right of the pilgrim-highway; thus showing that miners, not passing travellers, have here left their mark.

After riding five hours and forty minutes

(= seventeen miles) the party reached the base of the third sulphur-hill discovered by the Expedition on the coast of Midian. Also known as the *Tuwayyil el-Kibrît*, the "Little-long (Ridge) of Brimstone," it appears from afar a reddish pyramid rising about two miles inland of an inlet, which is said to be safe navigation. Thus far it resembles the Jibbah find: on the other hand, it is not plutonic, but chalky like those of Makná and Sinai, the crystals being similarly diffused throughout the matrix. In the adjoining hills and cliffs the Secondaries and the conglomerates take all shades of colour, marvellous to behold when the mirage raises to giant heights the white coast-banks patched with pink, red, mauve, and dark brown. Moreover, the quarries of mottled alabaster, which the Ancients worked for constructions, still show themselves.

The travellers slept at the base of the *Tuwayyil*. Next morning M. Philipin proceeded to collect specimens of the sulphur and of the chalcedony-agate strewed over the plain, and here seen for the first time. M. Marie and Lieutenant Yusuf rode on to the banks of the Wady Hamz; and, after three hours (= nine miles), they came upon the "Castle" and unexpectedly turned up trumps. I had carelessly written for them the name of a ruin which all, naturally enough, believed would prove to be one of the normal barbarous *Hawáwît*. They

brought back specimens of civilized architecture; and these at once determined one of the objectives of our next journey. The party returned to El-Wijh on the next day, in the highest of spirits, after a successful trip of more than fifty miles.

Meanwhile I steamed southwards, accompanied by the rest of the party, including the Sayyid, Shaykh Furayj, and the ex-Wakíl, Mohammed Shahádah, who is trusted by the Bedawin, and who brought with him a guide of the Fawá'idah-Juhaynah, one Rájih ibn 'Ayid. This fellow was by no means a fair specimen of his race: the cynocephalous countenance, the cobweb beard, and the shifting, treacherous eyes were exceptional; the bellowing voice and the greed of gain were not. He had a free passage for himself, his child, and eight sacks of rice, with the promise of a napoleon by way of "bakhshísh;" yet he complained aloud that he had no meat to break his fast at dawn—an Arab of pure blood would rather have starved. He shirked answering questions concerning the number of his tribe. "Many, many!" was all the information we could get from him; and his Arabic wanted the pure pronunciation, and the choice vocabulary, that usually distinguish the Juhayni pilots. Arrived at his own shore, he refused to make arrangements for disembarking his rice; he ordered, with bawling accents and pointed stick, the sailors of the man-

of-war to land it at the place chosen by himself; and he bit his finger when informed that a sound flogging was the normal result of such impudence.

We set out at 4.30 p.m. (March 24th); and steamed due west till we had rounded the northern head of El-Raykhah, a long low island which, lying west-south-west of El-Wijh, may act breakwater in that direction. Then we went south-west, and passed to port the white rocks of Mardúnah Isle, which fronts the Ras el-Ma'llah, capping the ugly reefs and shoals that forbid tall ships to hug this section of the shore. It is described as a narrow ridge of coralline, broken into pointed masses two to three hundred feet high, whose cliffs and hollows form breeding-places for wild pigeons: the unusually rugged appearance is explained by the fact that here the "Jinns" amuse themselves with hurling rocks at one another. Before night we had sighted the Ras Kurkumah, so called from its "Curcuma" (turmeric) hue, the yellow point facing the islet-tomb of Shaykh Marbat.* Upon this part of the shore, I was told, are extensive ruins as yet unvisited by Europeans, the dangerous Juhaynah being the obstacle. To the south-east towered tall and misty forms, the Ghâts of the Tihámat-Jahanîyyah. Northernmost, and prolonging the Libn, that miniature Shárr, is the

* Not *Shaykh Hasan el-Marâbit*—"Pilgrimage," Vol. I. Chap. XI.

regular wall of the Jebel el-Ward; then come the peaks and pinnacles of the Jibál el-Safhah; and lastly, the twin blocks El-Rál, between which passes the Egyptian Hajj when returning from El-Medínah. Faint resemblances of these features sprawl, like huge caterpillars, over the Hydrographic Chart, but all sprawl unnamed.

By way of extra precaution we stood to the south instead of the south-east, thus lengthening to one hundred and twenty knots the normal hundred (dir. geog. sixty-eight) separating El-Wijh from the Jebel Hassáni. Moreover, we caught amidships a fine lumpy sea, that threatened to roll the masts out of the stout old corvette. As the *Sinnár*, which always reminded me of her Majesty's steamship *Zebra*, is notably the steadiest ship in the Egyptian navy, the captain was asked about his ballast. He replied, "I have just taken command, but I don't think there is any; the engine (El-'iddah) is our *Saburra*"—evidently he had never seen the hold. This state of things, which, combined with open ports, foundered her Majesty's sailing frigate *Eurydice*, appears the rule of the Egyptian war-navy. I commend the consideration to English sailors.

The steering also was detestable; and the man at the wheel could not see the waves—a *sine quâ non* to the mariner in these latitudes, who "broaches to" whenever he can. A general remark: The

Egyptian sailor is first-rate in a *Dahabiyyah* (Nile-boat), which he may capsize once in a generation; and ditto in a Red Sea *Sambúk*, where he is also thoroughly at home. The same was the case with the Sultan of Maskat's Arabo-English navy: the Arabs and Sídís (negroes) were excellent at working their *Mtepe*-craft; on frigates they were monkeys, poor copies of men. Our European vessels are beyond and above the West Asiatic and the African. He becomes at the best a kind of imitation Jack Tar. He will not, or rather he cannot, take the necessary trouble, concentrate his attention, fix his mind upon his "duties." He says "Inshallah;" he relies upon Allah; and he prays five times a day, when he should be giving or receiving orders. The younger generation of officers, it is true, drinks wine, and does not indulge in orisons whilst it should be working; but its efficiency is impaired by the difficulties and delay in granting pensions. The many grey beards, however carefully dyed, suggest an *equipage de vétérans*.

The consequence of yawing and of running half-speed by night was that we reached Jebel Hassáni just before noon, instead of eight a.m., on the 25th. The island, whose profile slopes to the south-eastward, is a long yellow-white ridge, a lump of coral-line four hundred feet high, bare and waterless in summer: yet it feeds the Bedawi flocks at certain

seasons. It is buttressed and bluff to the south-west, whence the strongest winds blow; and it is prolonged by a flat spit to the south-east, and by a long tail of two vertebræ, a big and a little joint, trending north-west. Thus it gives safe shelter from the Wester to Arab barques;* and still forms a landmark for those navigating between Jeddah, Kusayr, and Suez. Its parallel runs a few miles north of the Dædalus Light (north lat. 24° 55′ 30″) to the west; and it lies a little south of El-Haurá on the coast, and of El-Medínah, distant about one hundred and thirty direct miles in the interior. If Ptolemy's latitudes are to be consulted, Jebel Ḥassáni would be the Timagenes Island in north lat. 25° 40′; and the corresponding Chersónesus Point is represented by the important and well-marked projection "Abú Madd," which intercepts the view to the south.

After rounding the southern spit, we turned to north-east and by east, and passed, with a minimum of seven fathoms under keel, between Hassáni the Giant and the dwarf Umm Sahr, a flat sandbank hardly visible from the shore. This is the only good approach to the secure and spacious bay that bore the southernmost Nabathæan port-town: there

* "Pilgrimage," Vol. I. Chap. XI., where it is erroneously called "Jebel Hasan;" others prefer Hasáni—equally wrong. Voyagers put in here to buy fish, which formerly was dried, salted, and sent to Egypt; and, during the Hajj season, the Juhaynah occupy a long straggling village of huts on the south side of the island.

are northern and north-western passages, but both require skilful pilots; and every other adit, though apparently open, is sealed by reefs and shoals. With the blue and regular-lined curtain of Abú el-Ghurayr in front, stretching down coast to Ras Abú Madd, we bent gradually round to the north-east and east. We then left to starboard the settlement El-Amlij, a long line of separate *'Ushash*, the usual Ichthyophagan huts, dull, dark-brown wigwams. They were apparently deserted; at least, only two women appeared upon the shore, but sundry Katírahs and canoes warned us that fishermen were about. We ran for safety a mile and three-quarters north of the exposed Ras el-Haurá; and at 1.30 p.m. (= twenty-one hours) we anchored, in nine fathoms, under the Kutá'at el-Wazamah. The pea-green shallows, which defended us to the north and south, had lately given protection to the Khedivíyyah* steamer *El-Hidayyidah*, compelled by an accident to creep along-shore like a Sambúk.

* There are now no less than three lines of steamers that connect the western coast of Arabia with the north. The first is the Egyptian Company, successively called Mejidíyyah, Azízíyyah, and Khedivíyyah, from its chief *actionnaire:* the packets, mostly three-masted screws, start from Suez to Jeddah every fortnight. Secondly, the Austro-Hungarian Lloyd which, with the subvention of £1400 per voyage, began in 1870 to ply monthly between Constantinople, Port Sa'íd, Suez, Jeddah, and Hodaydah: it has been suspended since the beginning of the Russo-Turkish war. Thirdly, the British India Steam Navigation Company sends every three weeks a ship from London *viâ* the Canal to Jeddah, Hoday-

El-Haurá is not found either in the charts, or in Ptolemy's and Sprenger's maps. It lies in north lat. 25° 6′, about the same parallel as El-Medínah; and in east long. (Gr.) 37° 13′ 30″.* Wellsted (II. x.) heard of its ruins, but never saw it: at least, he says, "In the vicinity of El-Haurá, according to the Arabs, are some remains of buildings and columns, but our stay on the coast was too limited to permit our examining the spot." He is, however, greatly in error when he adds, "Near this station the encampments of the Bilí (Baliyy) tribe to the southward terminate, and those of the Joheïnah commence." As has been seen, the frontier is nearly fifty miles further north. He notices (chap. ix.) the "White Village" to differ with Vincent, who would place it at El-Muwaylah; but he translates the word (ii. 461) "the bright-eyed girl," instead of *Albus* (*Vicus*). He quotes, however, the other name, Dár el-'ishrin ("Twentieth Station"), so called because the Cairo caravan formerly reached it in a score of days, now reduced to nineteen. He seems, finally, to have landed in order to inspect "a ruined town on the main," and to have missed it.

dah, and Aden. A fourth is proposed; Bymen's (Winan's?) steamers are establishing a London-Basrah (Bassorah) line, in whose itinerary will be Jeddah.

* The observation was taken on board the *Sinnár*, by the first lieutenant, Násir Effendi Ahmed: of course I am not answerable for its correctness, although the latitude cannot be far out. Thus the difference of parallel between it and El-Wijh (north lat. 26° 14′) would be sixty-eight direct geographical miles.

According to Sprenger, the "White Village, or Castle," was not a Thamudite, but a Nabathæan port. Here Ælius Gallius disembarked his troops from Egypt. Strabo (xvi. c. 4, § 24) shows that Λευκὴ κώμη was the starting-place of the caravans which, before the Nile route to Alexandria was opened, carried to Petra the merchandise of India and of Southern Arabia. Thence the imports were passed on to Phœnicia and Egypt:—these pages have shown why the journey would be preferred to the voyage northward. He is confirmed by the "Periplus," which relates (chap. xix.) that "from the port, and the castellum of Leukè Kóme, a road leads to Petra, the capital of the Malicha (*El-Malik*), King of the Nabathæans: it also serves as an emporium to those who bring wares in smaller ships from Arabia (Mocha, Múza, and Aden). For the latter reason, a Perceptor or toll-taker, who levies twenty-five per cent. *ad valorem*, and a Hekatontarches (centurion), with a garrison, are there stationed." As the Nabatæ were vassals of Rome, and the whole region had been ceded to the Romans (Byzantines) by a chief of the Beni Kudá' tribe, this *Yuzbáshi* or "military commandant" was probably a Roman.

El-Haurá, like most of the ruined settlements upon this coast, shows two distinct "quarters;" a harbour-town and what may be called a country-town. The latter, whose site is by far the more

picturesque and amene, lay upon a long tongue of land backing the slope of the sea-cliff, and attached to the low whitish hillocks and *pitons* rising down south. It is now a luxuriant orchard of emerald palms forming three large patches. Behind it swells a dorsum of golden-yellow sand; and the horizon is closed by ranges of hills and highlands, red and white, blue and black. Our eyes are somewhat startled by the amount of bright and vivid green: for some reason, unknown to us, the shore is far more riant than the northern section; and the land might be called quasi-agricultural. The whole coast seems to be broken with verdant valleys; from the Wady el-'Ayn, with its numerous branches beautifying the north, to the Wady el-Daghaybaj in the south, supplying water between its two paps.

On the evening of our arrival, we landed in a shallow bay bearing north-north-east (30° mag.) from the roads where the corvette lay at anchor; and walked a few yards inland to the left bank of the Wady el-Samnah, the unimportant *Fiumara* draining low hills of the same name. The loose sand is everywhere strewed with bits of light porous lava, which comes from the *Harrat el-Buhayr*, a bluff quoin to the north-west. About El-Haurá, I have said, the volcanic formations, some sixty miles inland on the parallel of El-Muwaylah, approach the coast.

We were guided to the ruins by the shouts of sundry Arabs defending their harvest against a dangerous enemy, the birds—rattles and scarecrows were anything but scarce. Apparently the sand contains some fertilizing matter. A field of dry and stunted Dukhn (*Holcus Dochna*), or small millet, nearly covers the site of the old castle, whose outline, nearly buried under the drift of ages, we could still trace. There are two elevations, eastern and western; and a third lies to the north, on the right side of the Wady Samnah. Scatters of the usual fragments lay about, and the blocks of white coralline explained the old names—Whitton, Whitworth, Whitby. The Bedawin preserve the tradition that this was the most important part of the settlement, which extended southwards nearly four miles. The dwarf valley-mouth is still a roadstead, where two small craft were anchored; and here, doubtless, was the corner of the hive allotted to the community's working-bees. An old fibster, Hámid el-Fá'idi, declared that he would bring us from the adjacent hills a stone which, when heated, would pour forth metal like water—and never appeared again. It was curious to remark how completely the acute Furayj believed him, *because* both were Arabs and brother Bedawin.

Next morning we set out, shortly after the red and dewy sunrise, to visit the south end of Leukè

Kóme. The party consisted of twenty marines under an officer, besides our escort of ten negro "Remingtons:" the land was open, and with these thirty I would willingly have met three hundred Bedawin. Our repulse from the Hismá had rankled in our memories, and we only wanted an opportunity of showing fight. After rowing a mile we landed, south-east of the anchorage (127° mag.), at a modern ruin, four blocks of the rudest masonry, built as a store by a Yambú' merchant. Unfortunately he had leased the ground from the Fawá'idah clan, when the Hámidah claim it: the result was a "faction fight"—and nothing done.

A few minutes' walking, over unpleasantly deep sand, placed us upon the Hajj-road. It is paved, like the shore, with natural slabs and ledges of soft modern sandstone; and, being foot-worn, it makes a far better road than that which connects Alexandria with Ramleh. The broad highway, scattered with quartz and basalt, greenstone, and serpentine, crossed one of the many branches of the Wady el-'Ayn: in the rich and saltish sand grew crops of Dukhn, and the Halfá-grass (*Cynosurus durus*) of the Nile Valley, with tamarisk-thickets, and tufts of fan-palm. On its left bank a lamp-black vein of stark-naked basalt, capped by jagged blocks, ran down to the sea, and formed a conspicuous buttress. The guides spoke of a similar volcanic outcrop above

Point Abú Madd to the south; and of a third close to Yambú' harbour.

An hour of "stravaguing" walk showed us the first sign of the ruins: wall-bases built with fine cement, crowning the summit of a dwarf mound to the left of the road; well-worked scoriæ were also scattered over its slopes. We now entered the date-orchards conspicuous from the sea: on both sides of us were fences of thorn, tamped earth, and dry stone; young trees had been planted, and, beyond the dates, large fields of Dukhn again gave an agricultural touch to the scene. Flocks of sheep and goats were being grazed all around us; and the owners made no difficulty, as they would have done further north, in selling us half a dozen.

We then entered the Wady Haurá, where the caravan camps. It is a cheery charming site for rich citizens, with its plain of rich vegetation everywhere, say the natives, undermined by water; its open sea-view to the west; its mound of clean yellow sand behind, extending to the rocky horizon; and its pure fresh breezes blowing from the Nejd with an indescribable sense of lightness and health and enjoyment. In fact, it has all the accessories of an "eligible position." At the third or southern palm-patch, we found the only public work which remains visible in the great Nabathæan port. It was formerly a *Káríz*, the underground-aqueduct so

common in Persia; and it conducted towards the sea the drainage of the Jebel Turham, a round knob shown in the Chart, which bears south-east (121° mag.) from the conduit-head. The line has long ago been broken down by the Arabs; and the open waters still supply the Hajj-caravan. The *'Ayn* ("fountain") may be seen issuing from a dark cavern of white coralline: the water then hides itself under several filled-up pits, which represent the old air-holes; and, after flowing below sundry natural arches, the remains of the conduit-ceiling, it emerges in a deep fissure of saltish stone. From this part of its banks we picked up fair specimens of saltpetre. The lower course abounds in water-beetles, and is choked with three kinds of aquatic weeds. After flowing a few yards it ends in a shallow pool, surrounded by palms and paved with mud, which attracts flights of snipes, sandpipers, and sand-grouse.

The turbulent "Dog's Sons" * were mostly in the upper lands; but a few wretched fellows, with swords, old spears, and ridiculous matchlocks, assembled and managed to get up a squabble about the right of leading strangers into "our country" (*Bilád-ná*). The doughty Rájih ibn 'Ayid, who, mounted upon a mean dromedary, affected to be

* *Beni Kalb:* so the Juhaynah were called in the Apostle's day.

chief guide, seemed to treat their pretensions as a serious matter, when we laughed them to scorn. He and all the other experts gave us wholly discouraging details concerning a ruin represented to lie, some hours off, in the nearest of the southern Harrah. According to them, the *Kasr el-Bint* ("Maiden's Palace") was in the same condition as El-Haurá; showing only a single pillar, perhaps the "columns" to which Wellsted alludes. We could learn nothing concerning the young person whose vague name it bears; except that she preferred settling on the mainland, whereas her brother built a corresponding castle upon the islet Jebel Hassáni.* He is locally called Warakat ibn Naufal, a venerated name in the *Fatrah*, or "interval," between Jesus and Mohammed; he was the uncle of Khadijah the widow, and he is popularly supposed to have been a Christian. Here, as at other places, I inquired, at the suggestion of a friend, but of course in vain, about the human skeleton which Ibn Mujáwar, some six centuries ago, found embedded in a rock near the sea-shore.

Such is the present condition of the once famous emporium Leukè Kóme. We returned along the shore to embark; and, shortly after noon, the old corvette of Crimean date again swung round on her

* The site was probably near the Shaykh's tomb, where there are wells which in winter supply water.

heel, and resumed her wanderings, this time northwards. The run of eighteen hours and fifteen minutes was semicircular, but the sea had subsided to a dead calm. The return to El-Wijh felt like being restored to civilization; we actually had a salad of radish leaves—delicious!

Our travel will now lie through the Baliyy country, and a few words concerning this ancient and noble tribe may here be given. Although they apparently retain no traditions of their origin, they are known to genealogists as a branch of the Beni Kudá', who, some fifteen centuries ago, emigrated from Southern Arabia, and eventually exterminated the Thamudites. I have noted their northern and southern frontiers: to the north-east they are bounded by the vicious Ma'ázah and the Ruwalá-'Anezahs, and to the south-east by the Alaydán-'Anezahs, under Shaykh Mutlak. Like their northern nomadic neighbours, they have passed over to Egypt, and even the guide-books speak of the "Billi" in the valley of the Nile.

The Baliyy modestly rate their numbers at four thousand muskets, by which understand four hundred. Yet they divide themselves into a multitude of clans; our companion, the Wakíl Mohammed Shahádah, can enumerate them by the score; and I wrote down the twenty-three principal, which are common both to South Midian and to Egypt. The

chief Shaykh, Mohammed 'Afnán ibn Ammár, can reckon backwards seven generations, beginning from a certain Shaykh Sultán. About ten years ago he allowed the tribe to indulge in such dangerous amusements as "cutting the road" and plundering merchants. It is even asserted, privily, that they captured the fort of El-Wijh, by bribing the Turkish *Topji* ("head gunner"), to fire high—like the half-caste artilleryman who commanded the Talpúr cannoneers at Sir Charles Napier's Battle of "Meeanee." A regiment of eight hundred bayonets was sent from Egypt, and the Shaykh was secured by a *Hílah*, or "stratagem;" that is, he was promised safe conduct: he trusted himself like a fool, he was seized, clapped in irons, and sent to jail in the Citadel of Cairo. Here he remained some seven months *in carcere duro*, daily expecting death, when Fate suddenly turned in his favour; he was sent for by the authorities, pardoned for the past, cautioned for the future, and restored to his home with a *Murátibah* ("regular pension") of eight hundred piastres per mensem, besides rations and raiment. The remedy was, like cutting off the nose of a wicked Hindú wife, sharp but effective. Shaykh 'Afnan and his tribe are now models of courtesy to strangers; and the traveller must devoutly wish that every Shaykh in Arabia could be subjected to the same discipline.

The Baliyy are a good study of an Arab tribe in the rough. The Huwaytát, for example, know their way to Suez and to Cairo; they have seen civilization; they have learned, after a fashion, the outlandish ways of the Frank, the Fellah, and the Turk-fellow. The Baliyy have to be taught all these rudiments. Cunning, tricky, and "dodgy," as is all the Wild-Man-race, they lie like the "childish-foolish," deceiving nobody but themselves. An instance: Hours and miles are of course unknown to them, but they began with us by affecting an extreme ignorance of comparative distances; they could not, or rather they would not, adopt as a standard the two short hours' march between the Port and the inland Fort of El-Wijh. When, however, the trick was pointed out to them, they at once threw it aside as useless. No pretext was too flimsy to shorten a march or to cause a halt—the northerners did the same, but with them we had a controlling power in the shape of Shaykh Furayj. And like the citizens, they hate our manner of travelling: they love to sit up and chat through half the night; and to rise before dawn is an abomination to them.

At first their manners, gentle and pliable, contrast pleasantly with the roughness of the half-breds, Huwaytát and Maknáwi, who have many of the demerits of the Fellah, without acquiring the merits

of the Bedawi. As camel-men they were not difficult to deal with; nor did they wrangle about their hire. Presently they turned out to be "poor devils," badly armed, and not trained to the use of matchlocks. Their want of energy in beating the bushes and providing forage for their camels, compared with that of the northerners, struck us strongly. On the other hand, they seem to preserve a flavour of ancient civilization, which it is not easy to describe; and they certainly have inherited the instincts and tastes of the old metal-workers: they are a race of born miners. That sharpest of tests, the experience of travel, at last suggested to us that the Baliyy is too old a breed; and that its blue blood wants a "racial baptism," a large infusion of something newer and stronger.

NOTE ON THE "HARRAHS" OF ARABIA.

THE learned Dr. J. G. Wetzstein, in the appendix to his "Reisebericht," etc.,* records a conversation with A. von Humboldt and Carl Ritter (April, 1859), respecting the specimens which he had brought from the classical Trachonitis. Their appearance led the latter to question whether the latest eruptions of the Harrat Rájil, as it is called from an adjoining valley, may not have taken place within the historic period; and he referred to Psalm xviii. as seeming to note the occurrence, during David's reign, of such a phenomenon in or near Palestine. Humboldt deemed it probable that the Koranic legend (chap. iv.) of the Abyssinian host under

* This is the volume which I have translated: see also Dr. Beke's papers in the *Athenæum* (February 8 and 15, 1873).

Abraha destroyed by a shower of stones baked in hell-fire, referred, not to small-pox as is generally supposed, but to an actual volcanic eruption in Arabia.

"With what interest would that great man have learnt," writes Dr. Wetzstein, "that, as I was turning over the leaves of Yákút's 'Geographical Lexicon,' only a few days ago, I found that the Arabians knew of the existence of twenty-eight different volcanic regions between Haurán and Bab el-Mandeb!" Later still, Dr. Otto Loth published an elaborate paper "On the Volcanic Regions (Harras) of Arabia, according to Yakut" (thirteenth century), in which these eruptive sites are nearly all identified and described.

"Among the numerous volcanoes thus found to exist within the Arabian Peninsula," remarks Dr. Beke,* "the only one recorded as having been in activity within the historic period is the Harrat-el-Nár ('Fire Harra'), situate to the north-east of Medina, in the neighbourhood of Khaibur (Khaybar), in about 26° 30′ north lat., and 40° east long.; which, being traditionally said to have been in an active state six centuries before Mohammed, had actually an eruption in the time of the Prophet's successor, Omar. To the north-west of this 'Fire Harra' lies that known as the 'Harra of (the tribe of) Udhra' (Azrá): again, to the north of this is the 'Harra of Tabûk,' so called from the station of that name on the Hajj-road from Damascus to Mekka, the position of which is in about 28° 15′ north lat. and 37° east long.; and beyond this last, further to the north, and consequently between it and the northernmost Harra of the Râdjil, or Trachonitis, is the Harra Radjlâ. . . . Its designation, which means 'rough,' 'pathless,' seems to indicate its peculiarly rugged surface, and to lead to the inference that it is an immense field of lava." He cites Irby and Mangles ("Travels in Egypt," pp. 115, 116; reprinted by Murray, London, 1868), describing their route between Kerak and Petra, on the east side of the Ghor or Wady 'Arabah. "We noticed three dark volcanic summits, very distinguishable from the land. The lava that had streamed from them forms a sort of island in the plain."

Hence my late friend concluded that his "true Mount Sinai"

* See "Mount Sinai a Volcano" (Tinsleys). For a list of Yákút's volcanoes, see Dr. Beke, "Sinai in Arabia," Appendix, p. 535.

was the focus and origin of this volcanic region; and that the latter was the "great and terrible wilderness" (Deut. i. 19) through which the children of Israel were led on their way to mysterious Kadesh-Barnea. Thus, too, he explained the "pillar of the cloud by day," and the "pillow of fire by night" (Exod. xiii. 21).

CHAPTER XVI.

OUR LAST MARCH—THE INLAND FORT—RUINS OF THE GOLD-MINES AT UMM EL-KARÁYÁT AND UMM EL-HARÁB.

AGAIN there were preliminaries to be settled before we could leave El-Wijh for the interior. Shaykh Mohammed 'Afnán had been marrying his son; and the tale of camels came in slowly enough. On the day after our return from El-Haurá the venerable old man paid us a visit aboard *Sinnár*. He declares that he was a boy when the Wahhábi occupied Meccah and El-Medínah—that is, in 1803–4. Yet he has wives and young children. His principal want is a pair of new eyes; and the train of thought is, "*I* can't see when older men than myself can." The same idea makes the African ever attribute his sickness and death to sorcery: "Why should *I* lose life when all around me are alive?"—and this is the idea that lies at the bottom of all witch-persecution. Two pair of spectacles were duly despatched to him after our return to Cairo; and M. Lacaze there

exhibited a capital sketch of the picturesque, white-bearded face, with the straight features and the nut-cracker chin, deep buried in the folds of a huge red shawl.

The son, Sulaymán, has been espoused to a cousin older, they say, than himself; and he seems in no hurry to conclude the marriage. He would willingly accompany us to Egypt, but he is the father's favourite, and the old man can do nothing without him. A youth of about eighteen, and even more handsome than his sire, he has the pretty look, the sloping shoulders, the soft snaky movements, and the quiet, subdued voice of a nice girl. During the first marches he dressed in the finery of the Bedawin—the brilliant head-kerchief, the parti-coloured sandals, and the loose cloak of expensive broadcloth. The "toggery" looked out of place as the toilettes of the Syrian ladies who called upon us in laces and blue satins amid the ruins of Ba'lbek. Although all the hired camels belonged, as is customary, to the tribe, not to the Shaykh, the latter was accompanied by the usual "Hieland tail;" by his two nephews, Hammád and Náji, the latter our head-guide, addicted to reading, writing, and lying; by his favourite and factotum, Abdullah, an African mulatto, *Muwallid* or "house-born;" and by his *Wakíl* ("agent"), a big black slave, 'Abdullah Mohammed, ready of tongue and readier of fist. Lastly, I must

mention one 'Audah 'Adayni, a Huwayti bred in the Baliyy country, a traveller to Cairo, passing intelligent and surpassing unscrupulous. Confidential for a consideration, he told all the secrets of his employers, and it is my firm conviction that he was liberally paid for so doing by both parties of wiseacres.

The immediate objective of this, our last march, was the Badá plain, of which we first heard at Shaghab. I purposed subsequently to collect specimens of a traditional coal-mine, to which his Highness the Viceroy had attached the highest importance. Then we would march upon the Móchoura of the ancients, the mediæval El-Marwah or Zú Marwah, the modern Marwát-*cum*-Abá'l-Marú. Finally, we would return to El-Wijh, *viâ* the Wady Hamz, inspecting both it and the ruins first sighted by MM. Marie and Philipin.

On Friday, March 29th, I gave a breakfast, in the wooden barracks, to the officers of the *Sinnár* and the officials of the port. After which, some took their opium and went to sleep; while others, it being church-day, went to Mosque. We ran out of El-Wijh at 1.45 p.m., our convoy consisting of fifty-eight camels, forty-four of which were loaded; seven were dromedaries, and an equal number carried water. All had assured us that the rains of the two past years had been wanting: last winter they were scanty; this cold season they were *nil.* In

truth, the land was suffering terribly from drought. Our afternoon was hot and unpleasant: about later March the *Hawá el'-Uwwah*, a violent sand-raising norther, sets in and lasts through a fortnight. It is succeeded, in early April, by the calms of El-Ni'ám ("the Blessings"), which, divided into the Greater and the Less, last forty days. After that the summer—*Jehannum!*

From the raised and metalled bank, upon which the *Burj* stands, we descended to the broad mouth of the Wijh valley, draining the low rolling blue-brown line of porphyritic hillocks on the east. To our right lay the sparkling, glittering white plain and pool, *El-Melláhah*, "the salina." After an hour and a quarter of sandy and dusty ride, we passed through a "gate" formed by the Hamírat-Wijh, the red range which, backing the gape of the valley and apparently close behind the town, strikes the eye from the offing. Here the gypsum, ruddy and mauve, white and black, was underlaid by granite in rounded masses; and the Secondary formation is succeeded by the usual red and green traps. Though this part of our route lies in El-Tihámah, which, in fact, we shall not leave, we are again threading the Wady Sadr of the northern Shafah-range. A pleasant surprise was a fine vein of sugary quartz trending north-south: at that period we little suspected the sub-range to the south—per-

haps also the northern—of being, in places, one mighty mass of "white stone."

After covering six miles in an hour and three-quarters, exaggerated by the guides to three, we suddenly sighted the inland fort. Its approach is that of a large encamping-ground, and such, indeed, it is; the Egyptian pilgrim-caravan here halts on the fourth day from El-Muwaylah. The broken, untidy environs, strewed with bones and rubbish, show low mounds that mean ovens; stone rings, where tents are pitched; and the usual graves, amongst which a reverend man, Shaykh Sálih, rests in a manner of round tower. The site is, in one point at least, admirably well-chosen, a kind of *carrefour* where four valleys and as many roads meet; and thus it commands the mouths of all the gorges leading inland.

Riding up to the fort, we were welcomed by its commandant, Lieutenant Násir Ahmed, a peculiarly good specimen of his arm, the infantry. His garrison consists of thirteen regulars, whose clean uniforms show discipline, and whose hale and hearty complexions testify to the excellence of the water and the air. The men are paid annually by the treasurer of the Hajj-caravan. They are supposed to be relieved after seven years; but they have wives and families; and, like the British soldier in India half a century ago, they are content to pass

their working lives in local service. The commandant showed us over his castle, which was in excellent order; and brewed coffee, which we drank in the cool porch of the single gate. He then led us about the neighbourhood, and ended with inviting the Sáyyid, Furayj, and the Wakíl Mohammed Shahádah to a copious feast.

The fort is the usual square, straight-curtained work of solid masonry, with a circular bastion at each angle, and a huge arched main-entrance in the western façade. It is, in fact, one of the buildings that belong to the solid, sturdy age of Sultán Selim, and of the Sinnán Pasha so well known about Damascus. An inscription, with an illegible date, bears the name of Ahmed ibn Taylún, the founder of the Taylunide dynasty, in A.D. 868—884: this is another proof that the Mamlúk Soldans were lords of the soil; and that, even in the ninth century, South Midian was a province, or a dependency, of Egypt. Moreover, we picked up, to the north-east of the work, old and well-treated scoriæ, suggesting a more ancient settlement. Perhaps it was the locale preferred by the proprietors of the slaves who worked the inner mines, hidden from view and from the sea-breeze by the hills.

The castle being perfectly commanded by the heights behind, the circular towers to the east have crests raised in that direction, giving them a spoon-

shape, and a peculiar aptitude for arresting every cannon-ball coming from the west. The Bedawin, however, have no great guns; and apparently this shelter has been added since Wellsted's day.* To the curtains are attached the usual hovels, mat, palm-leaf, and walls of dry stone or mud, which here, as at Palmyra, inevitably suggest wasp-nests. The northern side is subtended by three large cisterns, all strengthened at the inner angles by the stepped buttresses first noticed when we were exploring Magháir Shu'ayb.

Up the valley and behind the fort, or to the north-east, lie the palm-plantations, the small kitchen-gardens, and the far-famed wells which, dug by Sultán Selim and repaired by Ibrahim Pasha in A.D. 1524 (?), supply the Hajj-caravan. The sandy bed, disposed east-west, is streaked, dotted, and barred with walls and outcrops of the hardest greenstone porphyry; and those which run north-south must arrest, like dykes, the flow of water underground. One of these reefs is laboriously scraped with Bedawi *Wusúm*, and with Moslem inscriptions comparatively modern. The material is heavy, but shows no quartz; whereas the smaller valleys which debouch upon the northern or right bank of the main line, display a curious conformation of the "white stone," contorted like oyster shells, and embedded in the trap.

* Vol. II. p. 187.

Of the six wells, revetted with masonry and resembling in all points those of Zibá, four, including *El-Tawílah*, the deepest, supply brackish water; and the same is the case with a fifth inside the fort, close to the chapel of his Holiness, Shaykh Abubakr. The water, however, appeared potable; and perhaps cleaning out and deepening might increase the quantity. The sweet element drunk by the *richards* of El-Wijh comes from the *Bir el-Za'farántyyah* ("of Saffron"), and from its north-eastern neighbour, *El-'Ajwah* ("the Date-paste"). The latter measures four or five fathoms; and the water appears under a boulder *in situ* that projects from the southern side. The reader will now agree with me that El-Wijh is not too drouthy for a quarantine-ground.

The plots of green meat lie about the water, sheltered from the burning sun by a luxuriant growth of date-trees. The Egyptian is the best man in the world for dabbling in mud; and here, by scraping away the surface-sand, he has come upon a clayey soil sufficiently fertile to satisfy his wants. The growth is confined to tobacco, potatoes, and cabbages, purslain (*Portulaca, pourpier*), radishes, the edible *Hibiscus*, and tomatoes, which are small and green. Lettuces do not thrive; cucumbers and water-melons have been tried here and up country; and—man wants little in Midian.

We set out early on the next day (5.30 a.m.,

March 30th) in disorderly style. The night had been cool and comfortable, dry and dewless; but the Shaykhs were torpid after the feast, and the escort and quarrymen had been demoralized by a week of sweet "do-nothing." Striking up the Wady el-Wijh, which now becomes narrow and gorge-like, with old and new wells and water-pits dotting the sole, we were stopped, after half an hour's walk, by a "written rock" on the right side of the bed. None of the guides seemed to know or, at any rate, to care for it; although I afterwards learnt that Admiral M'Killop (Pasha), during his last visit to El-Wijh, obtained a squeeze of the inscriptions. Wellsted (II. x.) erroneously calls this valley "Wádí el-Moyah," the name of a feature further south—thus leading me to expect the find elsewhere. Moreover, he has copied the scrawls with a carelessness so prodigious, that we failed at first to recognize the original. He has hit upon the notable expedient of massing together in a single dwarf wood-cut (Vol. II. p. 189) what covers many square feet of stone; and I was fool enough to republish his copy.*

A tall, fissured rock, of the hardest porphyritic greenstone, high raised from the valley-sole, facing north-west, and reducible to two main blocks, is scattered over with these "inscriptions," that spread in all directions. Most of them are Arab *Wusúm*,

* "The Gold-Mines of Midian," p. 213.

others are rude drawings of men and beasts, amongst which are conspicuous the artless camel and the serpent; and there is a *duello* between two funny warriors armed with sword and shield. These efforts of art resemble, not a little, the "Totem" attempts of the "Red Indians" in North and South America. There are, however, two scrapings evidently alphabetic, and probably Nabathæan, which are offered to the specialists in epigraphy: six appear in Wellsted's illustration, especially that with a long line above it, near the left and lower corner of the cut. M. Lacaze and I copied the most striking features in our *carnets;* he taking the right or southern side and leaving the other block to me. But the results did not satisfy us; and on April 10th I sent him with M. Philipin to make photographs. The latter, again, are hardly as satisfactory as they might be, because the inscriptions have not been considered the central points of interest. We shall pass during our present journey many of these Oriental "John Joneses" and "Bill Browns:" they will suggest the similar features of Sinaitic Wady Mukattib, which begot those monstrous growths, "The One Primæval Language" and "The Voice of Israel from Mount Sinai." *

* As regards these and similar *graffiti* see (*Athenæum*, March 16, 1878) an excerpt from the last *Comptes Rendues* of the *Acad. des Inscript. et B. Lettres*, Paris. The celebrated M. Joseph Halévy attacked in their entirety (about 680) the rock-writings in

Copied by M. Lecaze.

Copied by Capt. Barron

[Chap. XVI.

From the "written rock" the caravan travelled westward up an easy watercourse, "El-Khaur," distinguished as *El-Shimálí* ("the Northern"): it winds round by the north, and we shall descend it to-morrow. The mule-riders left the Wady el-Wijh, which extends some two hours eastward, and struck to the east-south-east. The bridle-path, running up the left bank of an ugly rocky torrent, the Wady Zurayb, presently reaches a plateau undulating in low rises. Burnt with heat, almost bare of trees, and utterly waterless, it is the model of a

the Safá desert, south-east of Damascus. The German *savants*, mostly attributing them to the Sabá tribes, who immigrated from Yemen about our first century, tried the Himyaritic syllabaries and failed. M. Halévy traces them to the Beni Tamúd (Thamudites), who served as mercenaries in the Roman army, and whose head-quarters we are now approaching. They contain, according to him, mostly proper names, with devotional formulæ, similar to those of the Sinaitic inscriptions and the Kufic and later epigraphs which we discovered. For instance, "By A., son of B., in memory of his mother; he has accomplished his vow, may he be pardoned." The language is held to be intermediate between Arabic and the northern Semitic branches. Names of the Deity (El and Loo or La'?) are found only in composition, as in Abd-El ("Abdallah, slave of El"); and the significant absence of the cross and religious symbols remarked in the Syrian inscriptions, denotes the era of heathenism, which lasted till the establishment of Christianity, about the end of the third century. "At that time," M. Halévy says, "Christianity became the official religion of the Empire; doubt and scepticism penetrated amongst those Arabic tribes which were the allies of Rome, and amongst whom, for a certain time, a kind of vague Deism was prevalent until the day when they disappeared, having been absorbed by the great migrations which had taken place in those countries."

mining country: elevate it from five hundred to nine thousand feet, and it would be the living (or dead) likeness of a Peruvian *cerro*. The staple material, porphyritic trap, shows scatters of quartz and huge veins, mostly trending north-south: large trenches made, according to the guides, by the ancients, and small cairns or stone piles, modern work, were also pointed out to us.

Crossing the heads of sundry watercourses, we fell into the Wady Umm el-Karáyát:* it begins, as is here the rule, with a gravelly bed, nice riding enough; it then breaks into ugly rocky drops and slides, especially at the hill shoulders, where thorn-trees and other obstacles often suggest that it is better to dismount; and, finally, when nearing the mouth, it becomes a matured copy of its upper self on an enlarged scale. Presently we turned to the left over a short divide, and stared with astonishment at the airy white heap, some two hundred feet high, which, capped and strewed with snowy boulders, seemed to float above our heads. The Wady-bed at our feet, lined along the left bank with immense blocks of similar quartz, showed the bases of black walls—ruins. "Behold Umm el-Karáyát!" exclaimed Nájí, the guide, pointing with a

* Some call it so; others Umm Karáyát: I have preferred the former—"Mother of the Villages," not "of Villages"—as being perhaps the more common.

wave of the arm, his usual theatrical gesture, to the scene before us. We could hardly believe our eyes: he had just assured us that the march from the fort is four hours, and we had ridden it in two hours and fifteen minutes (= six miles and a quarter).

Dismounting at once, and ordering the camp to be pitched near the ruins, we climbed up the south-eastern face of the quartz-hill, whose appearance was a novelty to us. Instead of being a regular, round-headed cone, like the Jebel el-Abyaz for instance, the summit was distinctly crateriform. The greater part of the day was spent in examining it, and the following are the results. This Jebel el-Marú showed, for the first time during the whole journey, signs of systematic and civilized work. In many parts the hill has become a mere shell. We found on the near side a line of air-holes, cut in the quartz rock, disposed north-south of one another; and preserving a rim, sunk like that of a sarcophagus, to receive a cover. Possibly it was a precaution against the plunder which ruined Brazilian Gongo Soco. The Arabs have no fear of these places, as in Wellsted's day, and Abdullah, the mulatto, readily descended into one about twelve feet below the surface. Messrs. Clarke and Marie explored the deepest by means of ropes, and declared that it measured sixty feet. They had to be ready with their bayonets, as sign of hyenas was common;

and the beast, which slinks away in the open, is apt, when brought to bay in caverns, to rush past the intruder, carrying off a jawful of calf or thigh.

This pit had two main galleries, both choked with rubbish, leading to the east and west; and the explorers could see light glimmering through the cracks and crevices of the roof—these doubtless gave passage to the wild carnivors. In other parts the surface, especially where the earth is red, was pitted with shallow basins; and a large depression showed the sinking of the hollowed crust. *Negro* quartz was evidently abundant; but we came to the conclusion that the rock mostly worked was, like that of Shuwák, a rosy, mauve-coloured schist, with a deep-red fracture, and brilliant colours before they are tarnished by atmospheric oxygen. It abounds in mica, which, silvery as fish-scales, overspreads it in patches; and the precious metal had probably been sought in the veinlets between the schist and its quartz-walling. In two pieces, specks, or rather *paillettes*, of gold were found lightly and loosely adhering to the "Marú;" so lightly, indeed, that they fell off when carelessly pocketed. Veins of schist still remained, but in the galleries they had been followed out to the uttermost fibril.

Reaching the crateriform summit, we found that the head of the cone had either "caved in," or had been carried off bodily to be worked. Here traces

of fire, seen on the rock, suggested that it had been split by cold affusion. A view from the summit of this burrowed mound gave us at once the measure of the past work and a most encouraging prospect for the future. We determined that the *Marwah* or "quartz-hill" of Umm el-Karáyát was the focus and centre of the southern mining region, even as the northern culminates in the Jebel el-Abyaz. Further experience rejected the theory, and showed us half a dozen foci and centres in this true quartz-region. The main hill projects a small southern spur, also bearing traces of the miner. The block of green trap to the south-west has a capping and a vein-network of quartz: here also the surface is artificially pitted. Moreover, there are detached white-yellow *pitons* to the north-east, the east, and the south; whilst a promising hillock, bearing nearly due north, adjoins the great outcrop. All have rounded conical summits and smooth sides, proving that they are yet virgin; and here, perhaps, I should prefer to begin work.

At our feet, and in north lat. 26° 13′, lies the settlement, in a short gravelly reach disposed north-west to south-east; and the bed is enclosed by a rim of trap and quartz hills. The ruins lie upon a fork where two gorges, running to the east and the north-east, both fall into the broad Wady el-Khaur, and the latter feeds the great *Wady el-Miyáh*, the

"Fiumara of the Waters," of which more presently. The remains on the upper (eastern) branch-valley show where the rock was pulverized by the number of grinding implements, large and small, coarse and fine, all, save the most solid, broken to pieces by the mischievous Bedawi. Some are of the normal basalt, which may also have served for crushing grain; others are cut out of grey and ruddy granites: a few are the common *Mahrákah* or "rub-stones," and the many are handmills, of which we shall see admirable specimens further on. One was an upper stone, with holes for the handle and for feeding the mill: these articles are rare. I also secured the split half of a ball, or rather an oblate spheroid, of serpentine with depressions, probably where held by finger and thumb; the same form is still used for grinding in the Istrian island of Veglia. This is one of the few rude stone implements that rewarded our careful search.

The north-eastern, which is the main Wady, has a sole uneven with low swells and falls. It was dry as summer dust: I had expected much in the way of botanical collection, but the plants were not in flower, and the trees, stripped of their leaves, looked "black as negroes out of holiday suits." Here lie the principal ruins, forming a rude parallelogram from north-east to south-west. The ground plan shows the usual formless heaps of stones and pebbles,

with the bases of squares and oblongs, regular and irregular, large and small. There were no signs of wells or aqueducts; and the few furnaces were betrayed only by ashen heaps, thin scatters of scoriæ, and bits of flux—dark carbonate of lime. Here and there mounds of the rosy micaceous schist, still unworked, looked as if it had been washed out by the showers of ages. The general appearance is that of an *ergastulum* like Umm Ámil: here perhaps the ore was crushed and smelted, when not rich enough to be sent down the Wady for water-working at the place where the inland fort now is.

The quarrymen, placed at the most likely spots, were ordered to spall rock for specimens: with their usual perversity, they picked up, when unwatched, broken bits of useless stuff; they spent the whole day dawdling over three camel-loads, and they protested against being obliged to carry the sacks to their tents. Meanwhile Náji, who had told marvellous tales concerning a well in the neighbouring hills, which showed the foundations of houses in its bowels, was directed to guide Lieutenant Amir. He objected that the enormous distance would be trying to the stoutest mule, and yet he did not blush when it was reached after a mile's ride to the south-west (240° mag.). It proved to be a long-mouthed pit, sunk in the trap hill-slope some four fathoms deep, but much filled up; and, so far from being

built in, it had not even the usual wooden platform. Eastward of it, and at the head of the Wady Shuwaytanah, "the Devilling," lay a square ruin like a small *Mashghal* of white quartz: here also were three stones scribbled with pious ejaculations, such as *Yá Allah!* and *Bismillah*, in a modern Kufic character.

Umm el-Karáyát, "the Mother of the Villages," derives her title, according to the Baliyy, from the numerous offspring of minor settlements scattered around her. We shall pass several on the next day's march, and I am justified in setting down the number at a dozen. The Wady el-Kibli, the southern valley, was visited by Lieutenants Amir and Yusuf on April 9th, when we were encamped below it at Abá'l-Marú.* After riding about six miles to the north-north-west, down the Wady el-Mismáh and up the Wady el-'Argah, they reached, on the left bank of the latter, the ruins known as *Marú el-Khaur*. The remains of the daughter are those of the "mother." There are two large heaps of quartz to the north and to the south-east of the irregular triangle, whose blunted apex faces northwards: the south-eastern hill shows an irregular *Fahr* ("pit") in the reef of white stone, leading to a number of little tunnels.

I lost all patience with Wellsted,† whose blunders

* See Chap. XIX.

† Vol. II. Chap. X.

concerning the Umm el-Karáyát are really surprising, even for a sailor on camel-back. He reaches the ruins after ten miles from the fort, when they lie between twelve and thirteen from El-Wijh. He calls the porphyritic trap "dark granite." He makes the grand quartz formation "limestone, of which the materials used for constructing the town (coralline!) appear to have been chiefly derived." He descends the "caves" with ropes and lights; yet he does not perceive that they are mining shafts and tunnels, *puits d'air*, adits for the workmen, and pits by which the ore was "brought to grass." And the Hydrographic Chart is as bad. It locates the inland fort six miles and three-quarters from the anchorage, but the mine is thrust eastwards ten miles and a quarter from the fort; the latter distance being, as has been seen, little more than the former. Moreover, the ruins are placed to the north, when they lie nearly on the same parallel of latitude as El-Wijh. Ahmed Kaptán fixed them, by solar observations, in north lat. 26° 13′, so that we made only one mile of southing. It ignores the porphyritic sub-range in which the "Mother of the Villages" lies; and it brings close to the east of it the tall peaks of the Tihámat-Balawíyyah, which, from this point, rise like azure shadows on the horizon. Finally, it corrupts *Umm el-Karáyát* to *Feyrabat*. "Impossible, but true!"

The night at the ruins was dry and cool, even cold; disturbed only by the coughing of the men, the moaning of the camels, and the bleating of the sheep. We would willingly have spent here another day, but water and forage were absolutely wanting; and the guides assured us that even greater marvels, in the shape of ruins and quartz-reefs, lay ahead. We set out shortly after five a.m. (March 31st): the morning was pearly and rosy; but puffs of a warmer wind announced the *Dufún* (local *Khamsin*), which promised us three days of ugly working weather. Leaving Umm el-Karáyát by the upper or eastern valley-fork, we soon fell into and descended its absorbent, the broad (northern) Wady el-Khaur. Upon the right bank of the latter rose the lesser "Mountain of Quartz," a cone white as snow, looking shadowy and ghostly in the *petit jour*, the dim light of morning. For the next two hours (= seven miles) we saw on both sides nothing but veins and outcrops of "Marú," worked as well as unworked. All was bare and barren as the gypsum: the hardy 'Aushaz (*Lycium*), allied to the tea-tree, is the only growth that takes root in humus-filled hollows of the stone.

Presently the quartz made way for long lines and broad patches of a yellow-white, heat-altered clay, often revetted with iron, and passably aping the nobler rock: from one reef I picked up what

appeared to be trachyte, white like that of Shaghab. The hill-casing of the valley forms no regular line; the heaps of black, red, and rusty trap are here detached and pyramidal, there cliffing as if in presence of the sea. The vegetation improved as we advanced; the trees were no longer black and heat-blasted; and we recognized once more the dandelion, the thistle, the senna, the *Aristida* grass, and other familiar growths. Tents, shepherds, and large flocks of goats and kids showed that water was not distant; and, here in Baliyy-land, even the few young women seemed to have no fear of the white face.

After a slow, dull ride in the burning and sickly wind, we crossed the head of our former route, Wady Zurayb the Ugly, and presently entered the Wady *el-Kubbah* ("of the Cupola"), where our immediate destination rose before us. It is a grisly black saddleback, banded with two perpendicular stripes of dark stone that shines like specular iron; and upon its tall northern end, the pommel, stands a small ruin, the oft spoken of "Dome." Sketches of paths wind up the western flank; but upon this line, we were assured, no ruins are seen save a few pits. So we rounded the block by the north, following the broad Wady to the Máyat el-Kubbah, water-pits in the sand whose produce had not been libelled when described as salt, scanty, and stinking.

The track then turned up a short, broad branch-Wady, running from south to north, and falling into the left bank of the "Dome Valley:" a few yards brought us to a halt at the ruins of El-Kubbah. We had pushed on sharply during the last half of the way, and our morning's ride had lasted four hours (= thirteen miles).

The remains lie in the uneven quartzose basin at the head of the little lateral watercourse: they are built with good cement, and they evidently belong to the race that worked the "Mother of the Villages;" but there is nothing to distinguish them except the ruins of a large *Sákiyah* ("draw-well"), with its basin of weathered alabaster. We were perplexed by the shallow conical pits in the porphyritic trap, to the east and west of the "Dome Hill;" the ground is too porous for rain cisterns, and the depth is not sufficient for quarrying. The furnaces showed the normal slag; but the only "metals" lying around them were poor iron-clay, and a shining black porphyry, onyxed with the whitest quartz. There were, however, extensive scatters of *Negro*, which had evidently been brought there; and presently we found large heaps of rosy-coloured, washed-out schist.* These explained the *raison d'être* of this dreary and dismal hole.

* This rock, assayed in England, produced no precious metal. As has been said, gold was found in its containing walls of quartz.

Meanwhile the juniors ascended the rocky "Kubbah" hill, which proved to be a small matter of 120 feet (aner. 29·34) above the valley-sole (aner. 29·46). The "Dome" was nothing but a truncated circle of wall, porphyry and cement, just large enough to hold a man; the cupola-roof, if there ever had been one, was clean gone; and adjoining it yawned a rock-cut pit some fifteen feet deep. I came to the conclusion that here might have been a look-out where, possibly, the "bale-fire" was also lit. The "ascensionists" brought back a very healthy thirst.

We rested till noon in the filmy shade of the thorn-trees. The caravan was at once sent forward to reach the only good water, lying, said the guides, many a mile beyond. We had made up our minds for a good long march; and I was not a little vexed when, after half an hour, we were led out of the Wady el-Kubbah, whose head, our proper line, lies to the north, into its eastern influent, the Wady el-Dasnah. Here, after an afternoon "spell" of forty-five minutes (= two miles and a half), and a total of four hours and forty-five minutes (= fifteen miles and a half), a day nearly half wasted, we found the tents pitched. The heat had strewed the Wady with soldiers and quarrymen; and the large pit in the bed, supplying "water sweet as the Nile," showed a swarm of struggling blacks,

which the Egyptian officers compared with *Afárít* or "demons;" we with large pismires. A sentinel was placed to prevent waste and pollution at the Máyat el-Dasnah, whose position is in north lat. 26° 23′.

April Fools' day was another that deserved to be marked with a white stone. I aroused the camp at 3.30 a.m., in order that the camels might load with abundance of water: we were to reach the springs of Umm Gezáz, but a presentiment told me that we might want drink. At that hour the camp was a melancholy sight: the Europeans surly because they had discussed a bottle of cognac when they should have slept; the good Sayyid without his coffee, and perhaps without his prayers; Wakíl Mohammed sorrowfully attempting to gnaw tooth-breaking biscuit; and the Bedawin working and walking like somnambules. However, at 5.10 a.m. we struck north, over a low divide of trap hill, by a broad and evidently made road, and regained the Wady el-Kubbah: here it is a pleasant spectacle rich in trees, and vocal with the cooing of the turtle-dove. After an hour's sharp riding we reached its head, a fair round plain some two miles across, and rimmed with hills of red, green, and black plutonics, the latter much resembling coal. It was a *replica* of the Sadr-basin below the Hismá, even to the *Khuraytah* or "Pass" at the northern end. Here,

however, the *Col* is a mere bogus; that is, no raised plateau lies beyond it.

We crossed a shallow prism and a feeding-basin: an ugly little gorge then led to the important Wady Sirr. We are now in the hydrographic area of the Wady Nejd,* which, numbering influents by the dozen, falls into the Salbah (*Thalbah*) of Sharm Dumaghah. The Sirr, though still far from its mouth, is at least three miles broad; and the guides speak of it as the *Asl el-Balawíyyah*, or "Old Home of the Baliyy." The view from its bed is varied and extensive. Behind us lies the Tihámat-Balawíyyah, the equivalent of the Ghâts of North Midian, from the Zahd to the Shárr. The items are the little Jebel 'Antar, which, peeping over the Fiumara's high left bank, is continued south by the lower Libn. The latter attaches to the higher Libn, whose triad of peaks, the central and highest built of three distinct castellations, flush and blush with a delicate pink-white cheek as it receives the hot caresses of the sun. We are now haunted by the Libn, which, like its big brother the Shárr, seems everywhere to accompany us.

Beyond the neutral ground, over which we are travelling, appear in front the pale-blue heights

* This is the valley confounded by Wallin and those who followed him (*e.g.* Keith Johnston) with the Wady Hamz, some forty miles to the south.

bordering the Wady Nejd to the north-west, and apparently connected with the *Jebelayn el-Jayy* in the far north (30° mag.). To the north-east the view is closed by the lumpy *Jebel el-Kurr* (the Qorh of Arabian geographers ?); followed southwards by the peaked wall of the *Jebel el-Ward*, and by El-Safhah with its "Pins." For the last eighteen miles we had seen no quartz, which, however, might have veined the underground-rock. The sole of the Sirr now appeared spread with snow, streaked and patched with thin white paint; the stones were mostly water-rolled, the discharge of valleys draining from afar. The ground was unpleasantly pitted and holed; the camels were weak with semi-starvation and the depressing south-wester; Lieutenant Amir put his dromedary to speed, resulting in a nose-flattening fall; and the Sayyid nearly followed suit.

This is our second day of *Khamsin;* yet on the northern slope of the great *Fiumara* we meet the cool land-wind. Either it or the sea-breeze generally sets in between seven and eight a.m., when the stony, sandy world has been thoroughly sunned. The short divide beyond the far bank of the Sirr is strewn with glittering mica-schist that takes the forms of tree-trunks and rotten wood; and with dark purple-blue fragments of clay-slate looking as if they had been worked. A counterslope of the same material, which makes excellent path-metal

placed us in the Wady *Rubayyigh* ("the Little *Rábigh*" or "Green-grown Spring"), a short and proportionally very broad branch draining to the Sirr. Here large outcrops of quartz mingled with the clay slate. A few yards further it abutted upon a small gravelly basin with ruins and a huge white reef of "Marú," which caused a precipitate dismounting. We had marched only four hours (= thirteen miles); but the loss of time has its compensations. Our Arabs, who consider this a fair day's work, will now, in hopes of a halt, show us every strew of quartz and every fragment of wall. They congratulated us upon reaching a part of their country absolutely unvisited by Europeans.

The site of our discovery was the water-parting of the Wady Rubayyigh with the Wady Rábigh, both feeders of the Sirr; this to the north, that to the south. The ruins, known as *Umm el-Haráb*, "Mother of Desolation," are the usual basement-lines: they lie in the utterly waterless basin, our camping-ground, stretching west of Marú Rubayyigh, the big white reef. This "Mother" bears nearly north of Umm el-Karáyát, in north lat. 26° 33′ 36″ (Ahmed Kaptán): her altitude was made upwards of a thousand feet above sea-level (aner. 28·92).

At Umm el-Haráb we saw for the first time an open mine, scientifically worked by the men of old.

They chose a pear-shaped quartz-reef; the upper dome exposed, the converging slopes set and hidden in green trap to the east and west, and the invisible stalk extending downwards, probably deep into Earth's bowels. They began by sinking, as we see from certain rounded apertures, a line of shafts striking north-north-east (45°–50° mag.) to south-south-west across the summit, which may measure one hundred and twenty yards. The intervening sections of the roof are now broken away; and a great yawning crevasse in the hill-top gives this saddleback of bare cream-coloured rock, spangled with white where recently fractured, the semblance of a "comb" or cresting reef.

We descended into this chasm, whose slope varies from a maximum of 45° to a minimum of 36° at the south. The depth apparently did not exceed thirty feet, making allowance for the filling up of centuries; but in places the hollow sound of the hammer suggested profounder pits and wells. I should greatly doubt that such shallow sinking as this could have worked out any beyond the upper part of the vein. Here it measures from six to eight feet in diameter, diminishing to four and a half and even three below. The sloping roof has been defended from collapse by large pillars of the rock, left standing as in the old Egyptian quarries; it shows the clumsy but efficient practice that preceded

timbering. The material worked was evidently the pink-coloured and silver-scaled micaceous schist; but there was also a whitish quartz, rich in geodes and veinlets of dark-brown and black dust. The only inhabitants of the cave, bats and lizards (*Gongylus ocellatus*, L., etc.), did not prevent M. Lacaze making careful study of the excavation; the necessity of brown shadows, however, robs the scene of its charm, the delicate white which still shimmers under its transparent veil of shade. Similar features exist at El-Muwaylah and El-Aujah, in the wilderness of Kadesh: but those are *latomiæ;* these are gold mines.*

Another sign of superior labour is shown by the quartz-crushing implements. Here they are of three kinds: coarse and rough basaltic lava for the first and rudest work; red granite and syenitic granite for the next stage; and, lastly, an admirable hand-mill of the compactest grey granite, smooth as glass and hard as iron. Around the pin-hole are raised and depressed concentric circles intended for ornament; and the "dishing" towards the rim is regular as if turned by machinery. We have seen as yet nothing like this work; nor shall we see anything superior to it. All are nether millstones, so carefully smashed that one can hardly help suspecting the kind of superstitious feeling which suggested icono-

* See the illustration, "Desert of the Exodus," p. 306.

clasm. The venerable Shaykh 'Afnán showed a touching ignorance concerning the labours of the ancients; and, when lectured about the *Nabat* (Nabathæans), only exclaimed, "Allah, Allah!"

In the evening we ascended the porphyry hills to the north of the little camping-basin; and we found the heights striped by two large vertical bands of quartz. The eastern vein, like the Jebel el-Marú, has a north-east to south-west strike (45° mag.); the western runs east-west with a dip to south. From the summit we could see that the quartz-mountain, as usual an exaggerated vein, is hemmed in on both sides by outcrops and hills of trap, black, green, and yellow, which culminate eastward in the Jebel el-Guráb (*Ǧuráb*). We had a fine bird's-eye view of the Wady Rábigh, and of our next day's march towards the Shafah Mountains: the former was white with quartz as if hail-strewn. Far beyond its right bank rose an *Ash'hab*, or "grey head," which seemed to promise quartzose granite: it will prove an important feature. Before sleeping, I despatched to El-Wijh two boxes of micaceous schist and two bags of quartz, loads for a pair of camels.

CHAPTER XVII.

THE MARCH CONTINUED TO EL-BADÁ—DESCRIPTION OF THE PLAIN BADAÏS.

AFTER the exciting scenes of the last three days, this stage was dull riding, and consequently, I fear, it will be dull reading as well as writing. We set off afoot betimes (5.10 a.m.) in the still warm morning that augured *Khamsín:* the third day was now telling heavily on man and beast. A walk of ten minutes led down the rough line of the little watercourse draining the *Marú Rubayyigh* to the Wady Rábigh. At a re-entering angle of the junction, a shallow pit was sunk; the sand became moist and red, and presently it was underlaid by a rubble of porphyritic trap. Nothing more!

We then crossed the Wady Rábigh, another of the short broad valleys which distinguish this section of South Midian. The bed sides, especially the right, are heaps and mounds of snowy quartz, with glittering crowns of block and boulder: all prove to

be veins in the grey granite, whose large coarse elements are decomposed by weather. The dark and rusty walls of the valley also discharge the white stone in shunts and shoots: here and there they might be mistaken for *Goz* ("sand-banks") heaped up by the wind, except that these are clad in thin vegetation, whereas the "Marú" is mostly mother-naked. We halted here for rest and to examine these features: despite the *Khamsín*, the Great Gaster became querulous; hunger was now the chief complaint, and even the *bon ordinaire* had lost much of its attraction. A harmless snake was killed and bottled; its silver robe was beautifully banded with a line, pink as the circles of the "cobra coral," which ran along the whole length of the back. It proved to be a new species; and Dr. Günther named it *Zamenis elegantissimus*.

Beyond the Rábigh, we ascended a lateral valley, whence a low divide led to the Wady el-Bahrah ("of the Basin"), another feeder of the Sirr. It was also snow-white, and on the right of the path lay black heaps, *Hawáwít*, "ruins" not worth the delay of a visit. Then began a short up-slope with a longer counterslope, on which we met a party of Huwaytát, camel-men and foot-men going to buy grain at El-Wigh. Another apparition was a spearman bestriding a bare-backed colt; after reconnoitring us for some time, he yielded to the tempta-

tions of curiosity. It afterwards struck us that, mounted on our mules, preceded and followed by the Shaykhs riding their dromedaries, we must have looked mighty like a party of prisoners being marched inland. The horseman was followed by a rough-coated, bear-eared hound of the kind described by Wellsted* as "resembling the English mastiff"—he did not know how common is the beast further north. The *Kalb gasúr* (jasur) or "bold dog," also called *Kalb el-hámi*, or "the hot" (tempered), is found even amongst the Bedawin to the east of the Suez Canal; but there the half-bred is more common than the whole-blood. It is trained to tend the flocks; it never barks, nor bites its charges; and it is said to work as well as the shepherd-dog of Europe.

The Wady Mulaybij shows fine specimens of *mica doré* in the quartz-vein streaking the slate: it deceived all the caravan, save those who tested it with their daggers. The bed, after forming a basin, narrows to a sandy gut, smooth and pleasant riding; and, after crossing several valley-heads, the path debouches upon the Wady *Abá'l-Gezaz*. This "Father of Glass," though a day and a half's march from the sea, is even broader than the great Sirr to which it is tributary. Its line, which reminded us of the Dámah, is well marked by unusually fine vegeta-

* Vol. II. Chap. X.

tion: and the basin bears large clumps of fan-palm, scattered Daum-trees, the giant asclepiad El-'Ushr,* thickets of tamarisk and scatters of the wild castor-plant, whose use is unknown to the Arabs. Water wells up abundantly from a dozen shallow pits, old and new, in the sand of the southern or left bank. Here the flow is apparently arrested by a tall buttress of coarse granite, red with orthose, and sliced by a trap-dyke striking north-south.

Our day's work had been only four slow hours; but we were compelled to await the caravan, which did not arrive till after noon. It had passed round by the Wady Rábigh, into and up the "Father of Glass;" in fact, it had described an easy semicircle; while we had ridden in a series of zigzags, over rough and difficult short cuts. A delay was also necessary for our mappers to connect this march with their itinerary of the central region. Already the Wady Mulaybij had shown us the familiar peak and dorsum of Jebel Raydán; and we had "chaffed" Furayj about his sudden return home. From our camp in the Abá'l-Gezáz, the Zigláb block of Shaghab bore nearly north (350° mag.); and the adjoining Jebel el-Aslah, also a blue cone on the horizon, rose about two degrees further north.

After the big mess-tent had been duly blown down, and the usual discipline had been adminis-

* Described in "The Gold-Mines of Midian," Chap. XII.

tered for washing in the drinking-pool; we crossed to the left of the Wady by way of an evening stroll, and at once came upon an *atelier* of some importance. The guides seemed to ignore its existence, so we christened it *Mashghal Abá'l-Gezáz.* On the slope of a trap-hill facing the Wady el-Ghamís, the southern valley which we had last crossed, stood a square of masonry scattered round with fragments of pottery, glass, and basalt. Below it, on the "mesopotamian" plain, lay the foundations of houses still showing their cemented floors. The lowlands and highlands around the settlement looked white-patched with mounds, veins, and scatters of quartz. The evening was stillness itself, broken only by the cries of the *Katás*, which are now nesting, as they flocked to drink; and the night was cool—a promise, and a false promise, that the *Khamsín* had ended on its usual third day.

The next morning (April 3rd) showed us El-Badá, the whole march lying up the Wady Abá'l-Gezáz, which changes its name with every water. The early air was delightfully fresh and brisk, and the cattle stepped out as if walking were a pleasure: yet the Arabs declared that neither camels nor mules had found a full feed in the apparently luxuriant vegetation of the *Fiumara*-bed. The tract began badly over loose sandy soil, so honeycombed that neither man nor beast could tread safely: the *Girdi* (Jirdi),

or "field rat," is evidently nocturnal like the jerboa; during the whole journey we never saw a specimen of either. A yellow wolf was descried skulking among the bushes, and a fine large hare was shot; porcupine-quills were common, and we picked up the mummy of a little hedgehog. The birds were swift-winged hawks and owls, pigeons and ring-doves; crows again became common, and the water-wagtail was tame as the Brazilian thrush, *João de Barros:* it hopped about within a few feet of us, quite ignoring the presence of Frenchmen armed with murderous guns. I cannot discern the origin of the pseudo-Oriental legend which declares that the "crow of the wilderness" (raven) taught Cain to bury his brother by slaying a brother crow, and scraping a grave for it with beak and claw. The murderous bird then perched upon a palm-tree, whose branches, before erect, have ever drooped, and croaked the truth into Adam's ear: hence it has ever been of evil augury to mankind. The hoopoe, which the French absurdly call *coq de montagne,* also trotted by the path-side without timidity; and the butcher-bird impudently reviewed the caravan from its vantage-ground, a commanding tree. The large swift shot screaming overhead; and the cries of the troops of Merops, with silver-lined wings, resembled those of the sand-grouse.

After some five miles the "Father of Glass"

changed his name to *Abú Daumah* (of the "one Theban Palm"). Porphyritic trap lay on both sides of us. To the right rose the Jebel 'Ukbal, whose grey form (*El-Ash'hab*) we had seen from the heights above Umm el-Haráb: the whole range of four heads, forming the south-western rim of the Badá saucer, is known as *El-'Akábil.* Below these blocks the Wady-sides were cut into buttresses of yellow clay, powdered white with *Sabkh*, or "impure salt." Charred circlets in the sand showed where alkali had been burned: the ashes, packed in skins, are shipped at El-Wijh for Syria, where they serve to make soap. The Bedawin call it *Aslah* (Athlah); the Egyptians *Ghassálah* ("the washer"), because, when rubbed in the hands, its succulent shoots clean the skin. Camels eat it, whereas mules refuse it, unless half-starved. This plant apparently did not extend all up the Wady. The water, where there is any, swings under the left bank; an ample supply had been promised to us, with the implied condition that we should camp at this *Mahattat el-'Urbán* ("Halting-place of the Arabs"), after a marching day of two hours! Seeing that we rode on, the Baliyy declared that they had searched for the two principal pools, and that both were dry, or rather had been buried by the Bedawin. But, with characteristic futility, they had allowed me to overhear their

conversation; and the word was passed to the soldiers, who at once filled themselves and their water-skins.

Hitherto we had been marching south of east. Presently, where the pretty green Wady el-Surúm falls into the left bank, we turned a corner, and sighted in front, or to the north, the great plain of Badá. The block, El-'Akábil, had projected a loop of some ten miles to be rounded, whereas a short cut across it would not have exceeded three. And now the Wady Abú Daumah abruptly changed formation. The red and green traps of the right side made way for grey granite, known by its rounded bulging blocks on the sides and summit, by its false stratification, by its veins of quartz that strewed the sand, and by its quaint weathering—one rock exactly resembled a sitting eagle; a second was a turtle, and a third showed a sphinx in the rough. The Badá plain is backed by a curtain so tall that we seemed, by a common optical delusion, to be descending when we were really ascending rapidly.

Anxiety to begin our studies of the spot made the ride across the basin, soled with rises comfortably metalled, and with falls of sand unpleasantly loose and honeycombed, appear very long. The palm-clump, where men camp, with its two date-trees towering over the rest, receded as it were. At

last, after a total of four hours and forty-five minutes (= sixteen miles), we dismounted at the celebrated groves, just before the ugly *Khamsín* arose and made the world look dull, as though all its colours had been washed out.

The dates form a kind of square with a sharp triangle to the south, upon the left bank of the *thalweg*, which overflows them during floods. The enceinte is the normal Arab "snake-fence" of dry and barked branches, which imperfectly defends the nurseries of young trees and the plots of *Khubbayzah* ("edible mallows") from the adjoining camping-place of bald yellow clay. The wells, inside and outside the enclosure, are nine; three stone-revetted, and the rest mere pits in the inchoate modern sandstone. The trees want thinning; the undergrowth is so dense as to be impenetrable; but the heads are all carefully trimmed, the first time we have seen such industry in Midian. The shade attracts vipers, chiefly the *Echis:* and I was startled by hearing the gay warble of the Bulbul—a nightingale in Arabia!

The next day was devoted to inspecting this far-famed site, with the following results. We have already seen a Bada' (بدع) and a Badí'a (بديع), whilst there is a Badí'ah (بديعة) * further north. We are now at a Badá (بدا) which fulfils all the con-

* Chap. XVIII.

ditions required by the centre and head-quarters of "Thamuditis." The site of the *Bújat Badá*, "the Wide Plain of Badá," as it is distinguished by the Arabs, represents, topographically speaking, a bulge in the Wady Nejd, before it becomes the Wady Abú Daumah, between the Shafah Mountains to the east and the Tihámah range seawards. The latitude is 26° 45′ 30″ = 0° 31′ 30″ north of El-Wijh.* From its centre, a little south of our camping-place, the Jebel Zigláb of Shaghab, distant, according to Yákút, one march, bears 32°, and the Aslah (Athlah) cone 30° (both mag.): it lies therefore south of Shuwák, with a little westing. The altitude is upwards of twelve hundred feet above sea-level (aner. 28·72). The size of the oval is about nine statute miles from north to south, where the main watercourse breaks; and twelve miles from east to west, giving an area of some 108 square miles. The general aspect of the basin suggests that of El-Haurá; the growth is richer than the northern, but not equal to that of the southern country. The ruins belong to the Magháir Shu'ayb category, and the guides compare the *Hawáwít* with those of Madáin Sálih.

Such is the great station on the Nabathæan overland highway between Leukè Kóme and Petra;

* Ahmed Kaptán's observation of Polaris. The Βαδαῖς (Bades) of Ptolemy is in north lat. 25° 30′.

the commercial and industrial, the agricultural and mineral centre, which the Greeks called Βαδαΐς; the Romans, Badanatha (Pliny, vi. 32); and the mediæval Arab geographers, Badá Ya'kúb, in the days when the Hajj-caravan used to descend the Wadys Nejd and the "Father of Glass." Now it is simply El-Badá: the name of the "Prophet" Jacob, supposed to have visited it from Egypt or Syria, being clean forgotten.

The rolling plain is floored with grey granite, underlying sandstones not unlike coral-rag, and still in course of formation. Through this crust outcrop curious hillocks, or rather piles of hard, red, and iron-revetted rock, with a white or a rusty fracture—these are the characteristics of the basin. The lower levels are furrowed with their threads of sand, beds of rain-torrents discharged from the mountains; and each is edged by brighter growths of thorn and fan-palm. The fattening Salíb grass is scattered about the water; the large sorrel hugs the *Fiumara*-sides; the hardy 'Aushaz-thorn (*Lycium*), spangled with white bloom and red currants, which the Arabs say taste like grapes, affects the drier levels; and Tanzubs, almost all timber when old, become trees as large as the Jujube.

The *Bújat* is everywhere set in a regular rim of mountains. The Shafah curtain to the north is fretted with a number of peaks, called as usual after

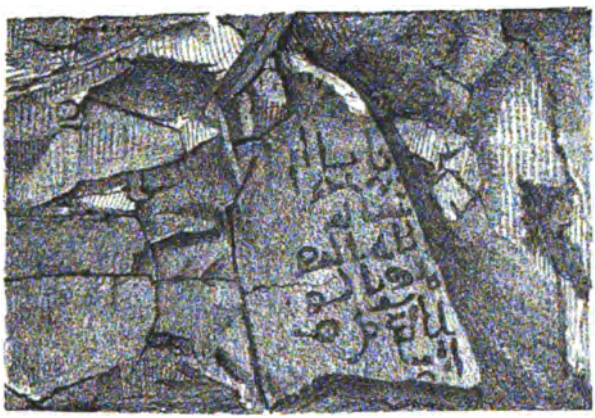
their Wadys;* the west is open with a great slope, the Wady Manab, whose breadth is broken only by the "Magráh" Naza'án, a remarkable saddleback with reclining cantle. It is distant a ride of two hours, and we have now seen it for three marches. A little south of east yawns the gorge-mouth of the Wady Nejd, the upper course of the Abá'l-Gezáz: a jagged black curtain, the Jebel Dausal, forms its southern jaw. Further south the Tihámah Mountains begin with the peaky Jebel el-Kurr, another remarkable block which has long been in sight. Its neighbour is the bluff-headed Jebel el-Wásil of Marwát; whilst the trap-blocks, already mentioned as the Jibál el-'Akábil, finish the circle.

The better to understand the shape of the ruins, we will ascend the irregular block which rises a few furlongs to the north-east of the palm-orchard. It has only three names: *'Araygat Badá* ("Veinlet of Badá"); *Zeba'yat Badá*, "the Low-lying (Hill) of Badá;" and *Shahíb el-Búm*, "the Ash-coloured (Hill) of the Owl." I will prefer the latter, as we actually sighted one of those dear birds on its western flank. It is an outcrop of grey granite, pigeon-holed by weather, and veined by a variety of dykes. Here we find greenstone breccia'd with the blackest horn-

* The barbarous names, beginning from the west, are Jebels Sehayyir, 'Unká ("of the griffon"), Marákh (name of a shrub), Genayy (Jenayy), El-Hazzah, El-Madhanah, Buza'mah, and Urnuwah.

blende; there huge *filons* of hard, red, heat-altered clays, faced with iron, whilst the fracture is white as trachyte; and there *filets* of quartz, traversing large curtains and sheets of light-coloured argils. This was evidently the main quarry: the sides still show signs of made zigzags; and the red blocks and boulders, all round the hill, bear the prayers and

INSCRIPTION AT EL-BADÁ.



pious ejaculations of the Faithful. The characters range between square Kufic, hardly antedating four centuries, and the cursive form of our day. Some are merely scraped; others are deeply and laboriously cut in the hard material, a work more appropriate for the miner than for the passing pilgrim.

From the ruined look-out on the summit the shape of the city shows a highly irregular triangle of nine facets, forming an apex at the east end of

our "Owl's Hill:" the rises and falls of the ground have evidently determined the outline. The palm-orchard, whose total circumference is five hundred and thirty-six mètres, occupies a small portion of its south-eastern corner; and our camping-place, further east, was evidently included in the ancient enceinte. The emplacement, extending along the eastern bank of the main watercourse, is marked by a number of mounds scattered over with broken glass and pottery of all kinds: no coins were found, but rude bits of metal, all verdigris, were picked up north of the palm-orchard. Here, too, lay queer fish-bones, with tusks and teeth, chiefly the jaws of *Scaridæ* and *Sparidæ* (seabreams).*

Descending the Shahíb el-Búm, and passing a smaller black and white block appended to its south-south-western side, we now cross to the left bank of the main drain. Here lies the broken tank, the normal construction of El-Islam's flourishing days. It is a square of thirty-two mètres, whose faces and angles do not front the cardinal points. At each corner a flight of steps has been; two have almost disappeared, and the others are very shaky. The

* Dr. C. Carter Blake examined the four brought home, and identified No. 1, superior pharyngeal bone and teeth (*Scarus*); No. 2, inferior bone and teeth of a large fish allied to *Labrus* or *Chrysophrys;* No. 3, left side, pre-maxillary, possibly same species; and No. 4, lower right mandible of *Sphærodon grandoculis*, Rüppell.

floor, originally stone-paved, is now a sheet of hard silt, growing trees and bush: dense Tanzub-clumps (*Sodada decidua*), with edible red berries, sheltering a couple of birds'-nests, suggested a comparison between the present and the past. At the east end is the *Makhzan el-Máyah*, or "smaller reservoir," an oblong of 7·80 by 6·60 mètres: the waggon-tilt roof has disappeared, and the fissures show brick within the ashlar. Along the eastern side are huge standing slabs of the coarse new sandstone with which the tank is lined: these may be remains of a conduit. Around the cistern lies a ruined graveyard, whose yawning graves supplied a couple of skulls. A broken line of masonry, probably an aqueduct, runs south-south-east (143° mag.) towards the palms: after two hundred mètres all traces of it are lost.

The mining industry could not have been a prominent feature at Badá, or we should have found, as in Shaghab and Shuwák, furnaces and scoriæ. Yet about the tank we lit upon large scatters of spalled quartz, which, according to the Baliyy, is brought from the neighbouring mountains. Some of it was rosy outside: other specimens bore stains of copper; and others showed, when broken, little pyramids of ore. Tested in England, it proved to be pure lead, a metal so rare that some metallurgists have doubted its existence: the finds have been mostly confined to auriferous lands. The blow-pipe

soon showed that it was not galena (the sulphide), but some of it contained traces of silver. Without knowing the rarity of these specimens, certain American officers at the Citadel, Cairo, compared them with the true galenas of the Dár-Forian mines, called *Mahattat el-Risás* (the "Deposit of Lead"), in the Wady Gotam, three days north-east of the capital El-Fashr. The African metal is rich. Large quantities, analyzed by Gastinel Bey, gave fifty per cent. of lead, and of silver fifty dollars per ton; but the distance from any possible market will reserve these diggings for the use of the future. Some were sanguine enough to propose smelting the metal at Khartúm, where *Risás* is ever in demand; and accordingly, for a time Dar-For was "run," by a mild "ring," against Midian.

The plain, I have said, is everywhere broken by piles of stone forming knobby hills. Leaving the outlined sphinx to the right, we ascended a second block, which rises on the west of the chief watercourse, further down than the "Owl's Hill." This Tell el-Ahmar ("Red Hill"), *alias* Ja'dat Badá (the "Curved Hill of Badá"), is a quoin of grey granite bluff to the south-west. The north-eastern flank shows the normal revetment of ruddy and black heat-altered grit, which gives a red back to the pale-sided, drab-coloured heap. Over the easy ascent is run a zigzag path; half-way up it passes piles of stone

that denote building, and it abuts at the summit upon one of those "look-outs" which are essentially Arab.

Again, to the south-east of the palms is the *Huzaybat Badá*, the "(Isolated) Hillock of Badá," a low ridge of naked grey granite, much scaled and pigeon-holed. On the plain to its north stretch regular lines of stone, probably the remnants of a work intended to defend the city's eastern approach. South of the *Huzaybah* appear the usual signs of an *atelier:* these workshops are doubtless scattered all around the centre; but a week, not a day, would be required to examine them. On the very eve of our departure the guides pointed northwards (350° mag.) to a "Mountain of Marú," called El-Arayfát, and declared that it contained a *Zaríbat el-Nasárá*, or "enclosure made by the Nazarenes." I offered a liberal present for specimens; all, however, swore that the distance ranged from two to three hours of dromedary, and that no mounted messenger could catch us unless we halted the next day.

The Bedawin, still relegated to the upper country, were sending their scouts to ascertain if the water-supply was sufficient in Badá plain. The adjacent valleys were dotted with she-camels and their colts. The adult animal here sells for twelve to thirty dollars. During the cotton-full in Egypt, and the cotton-famine of the United States, they

fetched as many pounds sterling at the frontier; and the traders of El-Wijh own to having made two hundred per cent., which we may safely double. I asked them why they did not import good stallions from the banks of the Nile; and the reply was that of the North Country—the experiment had ended in the death of the more civilized brutes. This is easily understood: the Baliyy camel seems to live on sand.

The camp was visited by a few Bedawi stragglers, and the reports of their immense numbers were simply absurd. The males were not to be distinguished, in costume and weapons, from their neighbours; and the "females" were all dark and dressed in amorphous blue shirts. At last came an old man and woman of the Huwaytát tribe, bringing for sale a quantity of liquefied butter. They asked a price which would have been dear on the seaboard; and naïvely confessed that they had taken us for pilgrims,—birds to be plucked. But sheep and goats were not to be found in the neighbourhood: yesterday we had failed to buy meat; and to-day the young Shaykh, Sulaymán, was compelled to mount his dromedary and ride afar in quest of it. The results were seven small sheep, which, lean with walking, cost eleven dollars; and all were slaughtered before they had time to put on fat.

During our stay a pitiable object, with a hide-

bandaged lower leg, often limped past the tents; and, thinking the limb broken, I asked the history of the accident. Our hero, it appears, was a doughty personage, famed for valour, who had lately slipped into the Juhayni country with the laudable intention of "lifting" a camel. He had, indeed, "taken his sword, and went his way to rob and steal," under the profound conviction that nothing could be more honourable—in case of success. He was driving off the booty, when its master sallied out to recover the stolen goods by force and by arms. Both bared their blades and exchanged cuts, when the Baliyy found that his old *flamberge* was too blunt to do damage. Consequently he had the worse of the affair; a slicing of the right hand forced him to drop his "silly sword." He then closed with his adversary, who again proved himself the better man, throwing the assailant, and at the same time slashing open his left leg. The wounded man lay in the "bush" till he gathered strength to "dot and go one" homewards. Amongst these tribes the *Diyat*, or "blood-money," reaches eight hundred dollars; consequently men will maim, but carefully avoid killing, one another.

The evening of our halt, with its lurid haze and its ominous brooding stillness, was distinguished by a storm, a regular Arab affair, consisting of dust by the ton to water by the drop. This infliction of the

"fearful fiend, Samiel, fatal to caravans," began in the west. A cloud of red sand advanced like a prairie-fire at headlong speed before the mighty rushing wind, whose damp breath smelt of rain; and presently the mountain-rim was veiled in brown and ruddy and purple earth-haze. A bow in the eastern sky strongly suggested, in the apparent absence of a shower, refraction by dust—if such thing be possible. We were disappointed, by the sinister wind, in our hopes of collecting a bottle of rain-water for the photographer; nor did the storm, though it had all the diffused violence of a wintry gale, materially alter the weather. The next two nights were brisk and cool, but the afternoons blew either the *Khamsín* ("south-wester") or the *Azyab* ("south-easter").

The only Bedawi tradition concerning the Badá plain is the following. Many centuries ago, some say before the Apostle, the Baliyy held the land, which was a valley of gardens, a foretaste of Irem; the people were happy as the martyrs of Paradise, and the date-trees numbered two thousand. The grove then belonged to a certain Ibn Mukarrib, who dwelt in it with his son and a slave, not caring to maintain a large guard of Arabs. Consequently he became on bad terms with the Ahámidah-Baliyy tribe, who began systematically to rob his orchard. At last one of a large plundering party said to him, "O Ibn Mukarrib! wilt thou sell this place of two

thousand (trees), and not retreat (from thy bargain)?" He responded "Buy!" (*i.e.* make an offer). The other, taking off his sandal, exclaimed, "With this!" and the proprietor, in wrath, rejoined, "I have sold!

Ibn Mukarrib then arose and went forth, with his son and the slave, to the place whence came the water (that fed the palms): this he closed up, and fared towards the north. One day it so happened that the three were sitting under the shade of a Marakh-tree and eating its berries. Quoth the sire to the son, "Say, which is the sweeter, the eating of the Marakh fruit or the dates of our orchard?" And the youth rejoined, "O my father! far sweeter is the eating of the fruit of our palm-yard;" when his sire at once arose and slew him with the sword (to wipe away the disgrace of such want of manliness).

Then Ibn Mukarrib turned to the slave, and asked him the question which he had asked of his son. Whereupon the slave replied in this quatrain:

"Eating wild grain in the house of respect;
And not eating dates in the house of contempt:
And walking in honour but a single day;
And not sitting in disgrace for a thousand years!"

Ibn Mukarrib, pleased with these words, forthwith adopted the slave; both marched to the north and dwelt there till the end of their days. The palm-

trees, deprived of irrigation, all died; and Bújat-Badá, the beautiful, became a wilderness. About twenty years ago, the wells were reopened and the dates were replanted. So much for the past: as for the future, we may safely predict that, unless occupied by a civilized people, the Badá plain will again see worse times. Nothing would be easier than to rebuild the town, and to prepare the basin for irrigation and cultivation; but destruction is more in the Bedawi line.

CHAPTER XVIII.

COAL A "MYTH"—MARCH TO MARWÁT—ARRIVAL AT THE WADY HAMZ.

BEFORE leaving Badá I was careful to make all manner of inquiries concerning stone-coal; and the guides confirmed the suspicions which had long suggested themselves. His Highness the Viceroy had laid great stress upon the search: the first question to me on return was whether the fuel had been found; and a shade of disappointment appeared when the answer distinctly declared it a myth.

This coal, it appears, is an old story. My learned friend Sprenger wrote to me (June 13, 1877): "It is likely that west of Marwa, on the way to Hawrá (which lies on the sea-shore), coal is found: I confess that the prospect of discovering much coal in Arabia does not appear to me very great; still it would be worth while to make inquiries." Subsequently (December 8, 1877), he gave up all hopes of the pure mineral, but he still clave to bituminous

schist. El-Mukaddasi (p. 103),* treating of the marvels of the land, has the following passage unconnected with those which precede and succeed it:—"A fire arose between El-Marwat and El-Haurá, and it burned, even as charcoal (el-Fahm) burns." Probably Sprenger had read, "and it (the stone) burned as charcoal burns," suggesting that the houses and huts were built of inflammable material, like the bituminous schist of the Brazil; and that the Arabs were surprised to find them taking fire. Evidently, however, the text refers to an eruption in one of the many Harrahs or volcanic districts. El-Mukaddasi describes the "houses artful (*farihín*, alluding to the Thamúdites in the Koran, xxvi. 149), and made of admirable stone (alabaster?); over the doors were knots (*'Ukúd*), and ornaments (*Turúh*), and carvings (*Nukúsh*)."

Landing at El-Wijh, I at once consulted our intelligent friend, the Wakíl Mohammed Shahádah. He had sent for a camel-load of the stuff, which, he declared, would not burn, although it had burned his money. He then travelled in person to the Jebel el-Muharrak ("Burnt Mountain"), five short marches inland from El-Badá plain, and behind its northern curtain, the Jibál el-Shafah. According

* The MS. of this geographer was brought to light by Professor Sprenger, and Part I. has been published by Professor de Goeje in his "Bibliotheca Geographarum Arabicorum," here alluded to.

to him, El-Muharrak is part of the great Harrah; and the unexplored Jaww, which lies north (?) of it, is a prolongation of the Hismá plateau, here belonging to the *Balawíyyah* or Baliyy-land. The mountain is tall and black, apparently consisting of the "coal." Near its summit lies the Bir el-Shifá' ("Well of Healing"), a pit of cold sulphur-water, excellent for the eyes; and generally a "Pool of Bethesda," whither Arabs flock from afar. At Abá'l-Gezáz, Mohammed destroyed all our surviving hopes by picking up a black stone which, he declared, belonged to El-Muharrak. It was schist, with a natural fracture not unlike coal, and weathered into the semblance of wood: unfortunately it was hard as iron, and it did not contain an atom of bitumen.

At Badá old Shaykh 'Afnán, whose tents are now pitched one day ahead of us, was taken into consultation upon the subject. He confirmed these statements of the *Wakíl*, adding that the Shafah Mountains are a mere ridge, not the seaward walls of a plateau, and that the land east of them is exactly that which we have already traversed. He had bathed in the sulphur-water; he spoke of brimstone being picked up on the hill-flanks, and he had heard of El-Kohl (*stibium, collyrium*, antimony) being found about El-Muharrak.*

* We have seen (Chap. II.) that the Arabs of Midian mistake iron for antimony; and the same is the case in the Sinaitic Peninsula.

These details, apparently authentic, did not tempt me to waste precious time upon El-Muharrak. I do not yet despair, as has been said, of finding coal in Arabia; but we must hardly expect volcanic ground to yield it.

Our preparations for a march southwards were made under difficulties. The Baliyy evidently like the prospect of some £6 per diem; and do *not* like the idea of approaching the frontier, where their camels may be stolen. Every silly, childish pretext was used to suggest delay. We ought not to move without seeing the "Nazarenes' Ruin" at El-'Arayfát. Again, I had sent a certain Salim, a cousin of the Shaykh, with orders for fresh supplies from El-Wijh: he was certain to miss us if we marched. Still again, old 'Afnán's dromedary had a thorn in the foot—u. s. w.

Nevertheless, an order was given for the return march on April 5th.

No matter how philosophical the traveller may be, I defy him not to feel some emotion when, his Desert work being duly done, he throws his leg over the saddle, and turn the animal's head homewards—towards London. Such was our pleasant predicament; for, though the *détour* would be considerable, and the delay still more so, I could distinguish the bourne at the far end of the very long perspective.

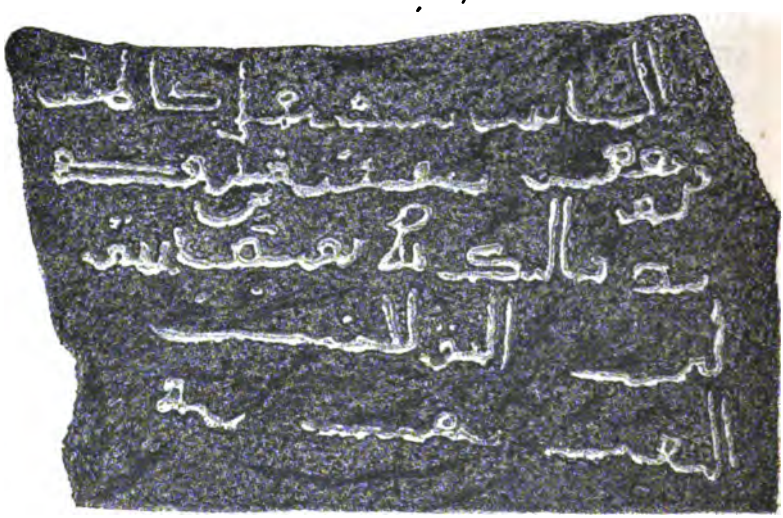
We were now in excellent marching order, not, however, including the mules, of which two had broken down with sore backs, and the others were breaking fast. The *réveillé* sounded at 3 to 3.30 p.m.; the "general" followed at four; and the start took place immediately afterwards. The camels are wretched animals, that work equally badly full and fasting: when hungry, they break their halters to graze along the path; and when gorged they are too lazy to go beyond a saunter of two miles an hour. Yet they can work well when pushed: the man Salim came up with us on the evening of the fourth day, after a forced march of thirty-two hours.

We took the track which crosses the Bújat-Badá to the south-east. For a short way it was vilely rat-eaten; presently it issued upon good, hard, stony ground; and, after four miles, it entered the Wady el-Marwát. This gorge, marked by the Jebel Wásil, a round head to the north, is a commonplace affair of trap and white clay; broad, rough, and unpicturesque. The sole shows many piles of dry stone, ruins of "boxes," in which the travelling Arab passes the night, whilst his camels are tethered outside. The watercourse heads in a *Khuraytah*, the usual rock-ladder; we reached it after eleven miles' riding. Nájí, the sea-lawyer of the party, assured us that we had not finished a third of the

way, when two-thirds would have been nearer the truth.

The Wady sides and head showed traces of hard work, especially where three veins of snowy quartz had been deeply cut into. The summit of the *Col*, some 2100 feet above sea-level, carried a fine reef of "Marú," measuring eight feet at the widest, and

KUFIC INSCRIPTION FROM MARWÁT (CARRIED TO CAIRO.)



trending 332° (mag.) Around it lay the usual barbarous ruins, mere basements, surrounded by spalled stone: from this place I carried off a portable Kufic inscription. The view down the regular and tree-dotted slope of the Wady el-Marwát, as far as the flats of Badá, was charming, an Argelèz without its over-verdure.

From the *Col* two roads lead to our day's destination. The short cut to the right was reported stony: as most of our mules were casting their irons and falling lame, I avoided it by the advice of Furayj, thereby giving huge offence to old 'Afnán. We followed the long slope trending to the Wady el-Kurr, which drains the notable block of that name. Seeing the Wakíl, and the others in front, cutting over the root to prevent rounding a prodigiously long tongue-tip, I was on the *qui vive* for the normal dodge; and presently the mulatto Abdullah screamed out that the *Nakb* must be avoided, as it was all rock. We persisted and found the path almost as smooth as a main road. The object was to halt for the night at a neighbouring water-hole in the rocks; and, when their trick failed, the Baliyy, with a naïve infantine candour, talked and laughed over their failure, *sans vergogne* and within earshot.

Despite the many *Zawábahs* ("dust-devils"), this was one of our finest travelling days. After the usual ante-meridian halt, we pushed on down the valley, meeting only a few donkey-drivers. At 2.15 p.m. (seven hours = twenty miles and a half), we reached the beautiful *'Ayn el-Kurr*, some ten direct miles east of the Wady Rábigh; and the caravan was only one hour behind us. This Wady is a great and important affluent of the Wady

el-Miyáh already mentioned. The reach where we camped runs from north to south; and the "gate" of porphyritic trap, red, green, yellow, and white with clay, almost envelops the quartz-streaked granite. The walls are high enough to give shade between eight a.m. and 2.15 p.m.; and the level sole of the cleanest sand is dotted, near the right side, with holes and pools of the sweetest water. Here "green grow the rushes," especially the big-headed Kasbá (*Arundo donax*); the yellow-tipped Namas or flags (*Scirpus holoschænus*) form a dense thicket; the 'Ushr, with its cork-like bark which makes the best tinder, is a tree, not a shrub; and there are large natural plantations of the saffron-flowered, tobacco-like *Verbascum*, the Arab's Uzn el-Humár ("Donkey's Ear"). Add scattered clusters of date-trees, domineering over clumps of fan-palm; and, lastly, marvellous to relate, a few hundred feet of greensward, of regular turf—a luxury not expected in North-Western Arabia—a paradise for frogs and toads (*Bufo vulgaris*), grasshoppers, and white pigeons; and you will sympathize with our enjoyment at the 'Ayn el-Kurr. In such a place extensive ruins of the "Old Ones" were to be expected. Apparently there is no trace of man beyond *Wasm* on the rocks; a few old Bedawi graves in a dwarf Wady inflowing from the west; a rude modern watercourse close above its mouth, and Arab

fences round the trimmed dates and newly set palm shoots.

During the afternoon the Shaykhs came to us with very long faces. At this season, and as long as the Baliyy are in the Shafah uplands, the almost deserted frontier districts, which we are about to enter, suffer from the *Gaum*, or *razzia*, of the neighbouring 'Anezah and the Juhaynah;—the two tribes, however, not mixing. The bandits, numbering, they say, from fifty to sixty, mounted on horses and dromedaries, only aspire to plunder some poor-devil-shepherd of a few camels, goats, and muttons. They never attack in rear; they always sleep at night, save when every moment is precious for "loot"-driving; and their weapons, which may be deadly in the narrows, are despicable in the open country.

I suspected at first that this was another "dodge" to enhance the services of our Arabs, but the amount of risk we were to run was soon found out by consulting Furayj. He said that we must march in rear of the caravan for a day or two; and that such attacks were possible, but only once in a hundred cases. There might have been treachery in camp; the Egyptian officers suggested that a Baliyy scout could have been sent on to announce the approach of a rich caravan. Accordingly, I ordered an evening review of our "Remingtons;" and chose a large

mark purposely, that the Bedawi lookers-on might not have cause to scoff. The escort redeemed many a past *lâche*, by showing that their weapons had been kept bright and clean, and by firing neatly enough. The Baliyy, who had never seen a breech-loader, were delighted; but one of our party so disliked the smell of powder, that he almost quarrelled with me for bringing him into such imminent deadly risk. He was hardly to be blamed; his nerves had been terribly shaken by a viper killed in his tent.

Next morning (April 6th) saw the most unpleasant of our marches. The young Shaykh Sulaymán, accompanied by his cousin Sálim, set out in the dark as *éclaireurs:* they were supposed to lead eight or ten of the best matchlock-men, whereas I doubt whether the whole camp contained that total. Presently it appeared that they were alone, and the farce was hardly kept up through the next day. At 5.15 a.m. we followed them, marching *militairement*, as my friend Sefer Pasha had strongly advised at Cairo. It is no joke to follow starveling beasts whose best speed seldom attains two miles and a half per hour. However, the effect was excellent: never had there been so little straggling; never had the halting-places been reached in such good time and good order.

A pleasant surprise awaited us in the grandest display of quartz that we had yet seen. The descent

of the Wady el-Kurr seemed to be as flat, stale, and profitless as possible, when "Marú" appeared on the left side in mounds, veins, and strews. Presently we turned south, and passed the brackish well, El-Hufayrah ("the Little Pit"), in a bay of the left bank, distant about eight miles from our last camp. Here the whole Wady, some two miles broad, was barred with quartz, in gravel of the same rock, and in veins which, protruding from the dark schist, suggested that it underlies the whole surface. Nothing more remarkable than the variety of forms and tints mingling in the mighty mass—the amorphous, the crystallized, the hyaline, the burnt; here mottled and banded, there plain red and pink, green and brown, slaty and chocolate, purple, kaolin-white; and, rarest of all, honeycomb-yellow. The richest part was at the *Majrá el-Ḳabsh* ("Divide of the Ram"), where we alighted and secured specimens.

From this point the Wady el-Kurr flows down the right side of its valley, and disappears to the west; while the far side of the *Majrá* shows the *Wady Gámirah* (Kámirah), another influent of the Wady el-Miyáh. Various minor divides led to the Wady el-Laylah, where ruins were spoken of by our confidant, 'Audah, although his information was discredited by the Shaykhs. Quartz-hills now appeared on either side, creamy-coated cones, each capped by its own sparkle, whose brilliancy was set

off by the gloomy traps which they sheeted and topped. In some places the material may have been the usual hard, white, heat-altered clay; but the valley-sole showed only the purest "Marú." The height of several hills was nearly double that of the northern Jebel el-Abyaz; and the reef-crests were apparently unworked.

After the march had extended to seven hours (= 18 miles), there were loud complaints about its length, the venerable 'Afnán himself begging us to spare his camels—which, being interpreted, meant spoiling our pockets. I therefore gave orders to camp in the broad and open Wady Laylah. We were far from water, but the evening was pleasant, and the night was still more agreeable.

At five a.m. next day (April 7th) we rode up the Wady Laylah, which gave us another surprise, and an unexpected joy, in the shifting scenery of the Jibál el-Safhah. The "Mountains of the Plain," so called because they start suddenly from a dead level, are a section of the Tihámat-Balawíyyah range; yet they are worthy links of a chain which boasts of a Shárr. Rising hard on our left, beyond the dull traps that hem in the Wadys, these blocks, especially the lower features, the mere foot-hills, assume every quaintest *nuance* of hue and form. The fawn-grey colour, here shining as if polished by "slickensides," there dull and roughened by the rude touch of Time,

is a neutral ground that takes all the tints with which sun and moon, mist and cloud, paint and glaze the world: changeable as the chameleon's, the coating is never the same for two brief hours. The protean shape, seen in profile and foreshortened from the north or south, appears a block bristling with "Pins" and points, horns and beaks. Viewed from the east the range splits into a double line, whose ranks have never been "dressed" nor sized; whilst a diagonal prospect so alters their forms and relations that they apparently belong to another range.

The background, lying upon the most distant visible plane, is the white-streaked and regular wall of the *Jebel el-Ward*, which we have already seen from the sea. Its northern foot-ranges are the pale-white and jagged *'Afayr*, whose utter isolation makes it interesting; and the low and long, the dark and dumpy *Jebel Tufayyah*. It is separated by a broad valley from its southern neighbour, the *Jebel el-Ughlub*, or El-Ghalab as some call it. This typical block consists chiefly of a monstrous "Parrot's Beak" of granite, continued by a long dorsum to the south. Its outliers number four. These are, first, the *Umm Natash*, two sets of perpendicular buttresses pressed together like sausages or cigars. Then comes the *Tala't Muhajjah*, a broken saddle-back, whose cantle from the south-east appears split

into a pair of steeple-like boulders—an architect of Alexander the Great's day would have easily cut and trimmed them into such towers as the world has never seen. Follows the *Umm el-Natákah*, bristling like the fretful porcupine, and apparently disdaining to receive the foot of man; while the last item, the *Jebel el-Khausilah*, has outlines so thoroughly architectural that we seem to gaze upon a pile of building.

About five miles behind or south of El-Khausilah runs the Wady Hamz. Thus the two blocks, El-Ward and El-Ughlub, form the Safhah proper. The line is continued, after a considerable break, by the two blue and conical peaks in the Tihámat-Jahanîyyah, known as the *Jebelayn el-Rál*. They are divided and drained to the Wady Hamz by the broad Wady el-Sula'; and the latter is the short cut down which the Egyptian Hajj, returning northwards from El-Medînah, debouches upon the maritime plain of South Midian.

The Wady Laylah, draining both the Shafah and the Tihámah ranges, including the block El-Ward, assumes, as usual, various names: we shall follow it till it is received into the mighty arms of the Wady Hamz, some three miles from the sea. After riding eight hours, we sighted the long line of Daum-palms which announce the approach to El-Birkah, "the Tank." Here the huge *Fiumara*,

sweeping grandly from north-east to south-west, forms a charming narrow and a river-like run about a mile and a half long—phenomenal again in sun-scorched Arabia. The water, collecting under the masses of trap which wall in the left bank, flows down for some distance in threads, *à ciel ouvert*, and finally combines in a single large blue-green pool on the right side. A turquoise set in enamel of the brightest verdure, it attracts by its dense and shady beds of rushes a variety of water-fowl—one of our Bedawin killed a black-headed duck with a bullet, which spoilt it as a specimen. About the water-run are dwarf enclosures, and even water-melons were sown ; unhappily the torrent came down and carried all away.

We halted near the upper spring at 8.20 a.m., after the usual accident which now occurred daily about that hour. On this occasion Lieutenant Yusuf's shoe stuck in the stirrup when he was dismounting from an unsteady mule ; the animal threw him, and he had a somewhat narrow escape from being dragged to death. Man and beast would have lingered long over the pleasures of watering and refection, but I forced them onwards at nine a.m., whilst the hot sun-rays were still tempered by the cool land-breeze. The threads of water and the wet ground extended some two kilomètres beyond the *Birkat*. Further on was another fine "gate,"

whose eastern or right jamb was the Jibál el-Tibgh, fronting the Wady M'jirmah. The narrows showed two Arab wells, with the usual platform of dry trunks that make a footing round the mouth. There was no break in the continuity of the quartz: the black trap enclosed, here sheets, there veins, and there almonds in puddings.

At the halting-place a "cerastes" (*Echis carinata*, Merr.), so called from the warty hollows over the eyes (?), was brought to me in a water-bag; the bearer transferred it to the spirit-bottle by neatly thrusting a packing-nèedle through the head. The pretty specimen of an amiable, and much oppressed, race did not show an atom of vice. I cannot conceive what has caused the absurd prejudice against snakes, even the most harmless. Perhaps we must trace it to the curious resemblance of the profile, with the flattened forehead, the steely bright eye, the formidable biting apparatus, and the vanishing chin, to the genus woman, species *Lorette*. It is hard to imagine that this little beast, which some one called a "Cleopatra's hasp," could be fatal: its small bag can hardly contain a couple of drops. Yet the *vox populi* is distinctly against me.

The Shaykhs were anxious to push on for another half-hour, where, they declared, a rain-hole is found in the next ravine, the Sha'b el-Kahafah.

But we had been privily told of another further down the valley, at the Sha'b el-Hárr; and, although we much wanted a bottleful for photography, we determined to run the risk. The result is curious, showing how jealously water-secrets are kept in these lands. The next thing I heard was that the water had waxed salt; then it had dried up; and, lastly, it was in the best condition, the truth being that there was none at all. Consequently we were compelled to send back four camels and two cameleers from our next camping-ground to the Kahafah. Venerable 'Afnán made many a difficulty, and an uncommon favour, of risking the plundering of the dromedaries and the lives of his caterans by a *razzia*. The fellows set off after nightfall towards the upper ravine, distant some two hours' slow march: they must there have had a pleasant, refreshing sleep; and they did not return, doubtless by order, till late next morning. This gave the Shaykhs a good opportunity of fearing greatly for the safety of their people, and of delaying our march as much as possible.

Resuming the road at 2.30 p.m., we entered the western prolongation of the Wady el-Birkah. Here it becomes the *Wady Abá'l-'Agág* ('Ajáj), and preserves that name till it anastomoses with the Hamz. There have been some wells in the bed; but all are

now filled up, and water must be carried from El-Birkah. We camped at a noble reach, garnished with a mimic forest of old tamarisks, whose small voices, united in chorus, passably imitated the mighty murmur of the sea. Our day's march had covered a score of miles; hard work, considering the condition of the mules.

After a splendid night, we set out London-wards at five a.m., April 8th, delayed, as has been said, by the *politiké* of the Shaykhs. Moreover, one of the party, whose motto should have been *halt's maul*, had remarked that the camels appeared fewer than before—another reason for stopping to count them. Half an hour placed us at a lower and a grander *carrefour*, abounding in fuel and seducing with tamarisk-shade: its water is known as the Máyat el-Badí'ah. Presently the hilly encasement of the Wady el-'Ajáj ended with El-'Adrá, a red *butte* to the left, and the Jebel el-Yakhmúm on the right. This knob was copiously veined with quartz, of which a prodigious depôt, explored on the next day, exists in the heights behind it. The Wady now flares out; we have done with the Tihámah Mountains, and we are again in maritime South Midian.

Although we were standing some four hundred feet above the *wasserspiegel*, there was no view of

the sea, and we had to cross a wave of ground before we pulled off our hats to Father Neptune, as he lay smiling in front of us. There was nothing monotonous in the scene. The mirage raised high in air the yellow mound of *Ras Kurkumah* ("Turmeric Head"), which bounded the water-line to the south. Nearer, but still far to the left, ran the high right bank of the Wady Hamz, sweeping with a great curve from north-east to west, till it stood athwart our path. Knobby hills were scattered over the plain; and on our right rose El-Juwayy, a black mound with white-sided and scarred head, whose peculiar shape, a crest upon a slope, showed us once more the familiar Secondary formation of North-Western Arabia. Thus the gypsum has been traced from the Sinaitic shore as far south as the Wady Hamz.

We rode sharply forwards, impatient to see the classical ruins, leaving the caravan to follow us. The *Girdi* ("sand-rat") had ceased to burrow the banks; but the jerboa had made regular rabbit-warrens. At half-past seven we crossed a winding and broad-spreading track, the upper Hajj-road, by which the Egyptian *Mahmal* passes when returning from El-Medinah *viâ* the Wady Hamz. A few yards further on showed us a similar line, the route taken by the caravan when going to Meccah *viâ* Yambú', now distant five marches. The two meet at the Wady

Wafdíyyah, to the north-east of the Abá'l-Marú range, which we shall visit to-morrow.

Shortly after 10 a.m. we crossed the deepest vein of the Wady Hamz, urged the mules up the stiff left bank, and sprang from the saddle to enjoy a first view of the *Gasr* (Kasr) *Gurayyim Sa'id.*

CHAPTER XIX.

THE WADY HAMZ—THE CLASSICAL RUIN—ABÁ'L-MARÚ, THE MINE OF "MARWAH"—RETURN TO EL-WIJH—RÉSUMÉ OF THE SOUTHERN JOURNEY.

BEFORE describing the Palace of Sa'íd the Brave, I must devote a few lines to a notice of the Wady Hamz.

The Wady Hamz, which has been mentioned as the southern frontier of Egyptian Midian, and the northern limit of the Ottoman Hejaz, is the most notable feature of its kind upon the North-Western Arabian shore. Yet Wallin has unjustifiably described and inscribed it "Wady Nejd," confusing it with a northern basin, whose mouth, the Salbah (*Thalbah*), we passed before reaching Sharm Dumayghah. He appears to identify it with the classical Wady el-Kura. Sprenger clean ignores the name, although he mentions its branches; and of course it is utterly neglected by the Hydrographic Chart. This main approach to the Arabian interior

is not a fissure, like the vulgar Wadys, but rather an opening where the Ghâts, or maritime chain, break to the north and south. Distant one long or two short marches from El-Wijh, its mouth is in north lat. 25° 55′; and it is said to head fifteen days inland, in fact beyond El-Medínah, towards which it curves with a south-easterly bend. It receives a multitude of important secondary valleys; amongst which is the Wady el-'Uwaynid, universally so pronounced. I cannot help thinking that this is *El-'Aúnîd* of El-Mukaddasi, which El-Idrísí (erroneously?) throws into the sea opposite Nu'mán Island. If my conjecture prove true, we thus have a reason why this important line has been inexplicably neglected. Another branch is the Wady el-'Is, Sprenger's "Al-'Ys" (pp. 28, 29), which he calls "a valley in the Juhaynah country," and makes the northern boundary of that tribe.

Ethnologically considered, the lower Wady Hamz is now the southern boundary of the Balawíyyah (Baliyy country), and the northern limit of the Jahanîyyah, or Juhaynah-land: the latter is popularly described as stretching down coast to Wady Burmah, one march beyond Yambú' (?). Higher up it belongs to the Alaydán-'Anezahs, under Shaykh Mutlak—these were the Bedawin who, during our stay at the port, brought their caravan to El-Wijh. Both tribes are unsafe, and they will wax

worse as they go south. Yet there is no difficulty in travelling up the Hamz, at least for those who can afford time and money to engage the escort of Shaykh Mutlak. A delay of twelve days to a fortnight would be necessary, and common prudence would suggest the normal precaution of detaining, as hostage in the seaboard settlement, one of his Alaydán cousins. Water is to be found the whole way, and the usual provisions are to be bought at certain places.

The following notes upon the ruins of the Wady Hamz were supplied to me by the Baliyy Bedawin and the citizens of El-Wijh. Six stages up the lower valley, whose direction lies nearly north-east, lead to El-'Ilá, Wallin's "Ela," which belongs to the 'Anezah. Thence a short day, to the north with easting, places the traveller at *Madáin* (not Madyan nor Medínat) Sálih—"the *cities* of Sálih." The site is described to be somewhat off the main valley, which is here broken by a *Nakb* (?); and those who have visited both declared that it exactly resembles Nabathæan *Maghâir Shu'ayb* in extensive ruins and in catacombs caverning the hill-sides.

Also called El-Hijr, it is made by Sprenger (p. 20) the capital of Thamuditis. This province was the head-quarters of the giant race termed the "Sons of Anak" (Joshua xi. 21); the Thamudeni and Thamudæ of Agatharkides and Diodorus; the

Tamudæi of Pliny; the Thamyditæ of Ptolemy; and the Arabian Tamúd (*Thamúd*), who, extinct before the origin of El-Islam, occupied the seaboard between El-Muwaylah and El-Wijh. Their great centre was the plain El-Badá; and they were destroyed by a terrible sound from heaven, the Beth-Kol of the Hebrews, after sinfully slaughtering the miraculously produced camel of El-Sálih, the Righteous Prophet (Koran, cap. vii.). The exploration of "Sálih's cities" will be valuable if it lead to the collection of inscriptions sufficiently numerous to determine whether the Tamúd were Edomites, or kin to the Edomites; also which of the two races is the more ancient, the Horites of Idumæa or the Horites in El-Hijr.

And now to inspect the *Gasr*. The first sensation was one of surprise, of the mental state which gave rise to the Italian's—

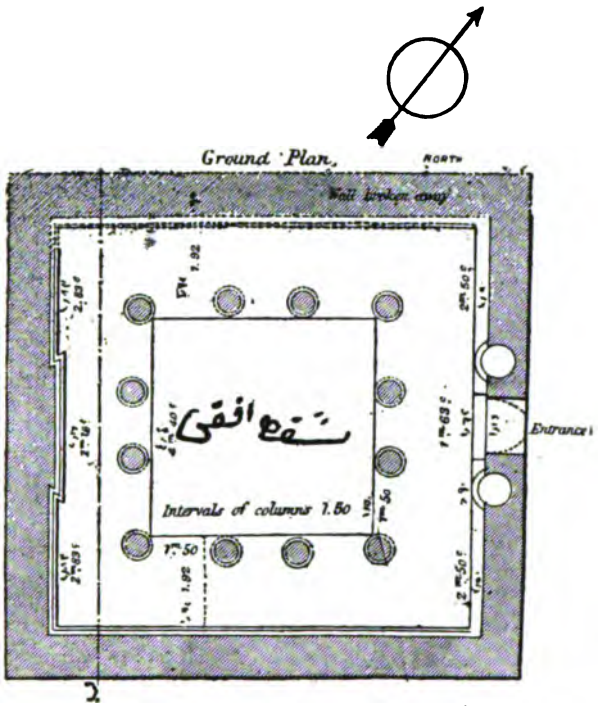
> "Dear Columns, what do you here?
> 'Not knowing, can't say, Mynheer!'"

And this incongruous bit of Greece or Rome, in the Arabian wild, kept its mystery to the last: the more we looked at it, the less we could explain its presence. Not a line of inscription, not even a mason's mark—all dark as the grave; deaf-dumb as "the olden gods."

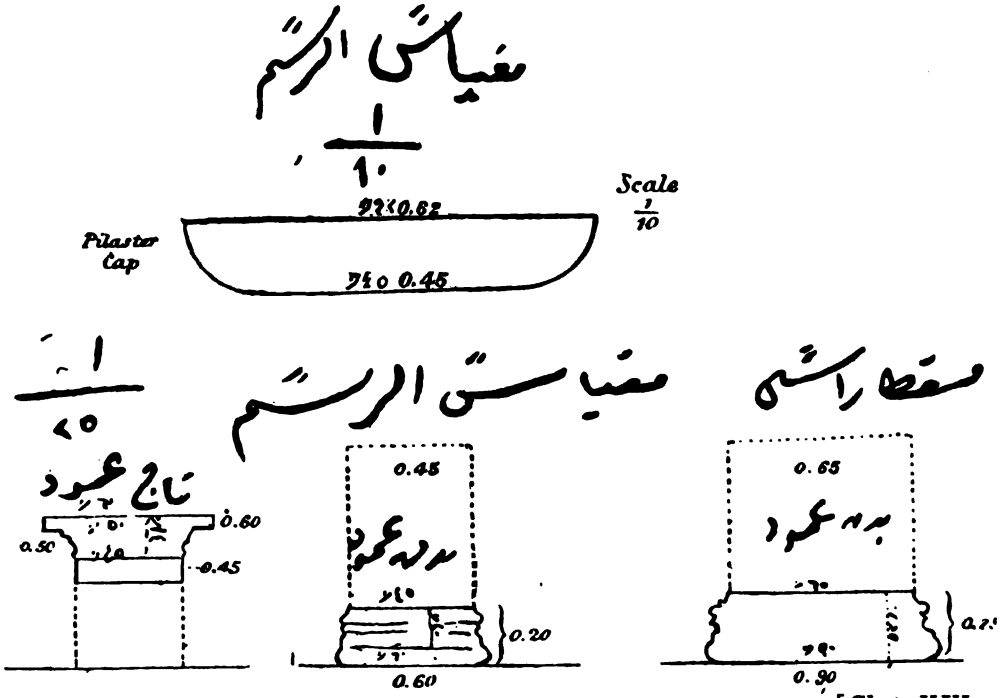
The site of the *Gasr* is in north lat. 25° 55′ 15″;*

* Ahmed Kaptán's solar observation.

GROUND PLAN OF THE TEMPLE, WADY HAMZ.

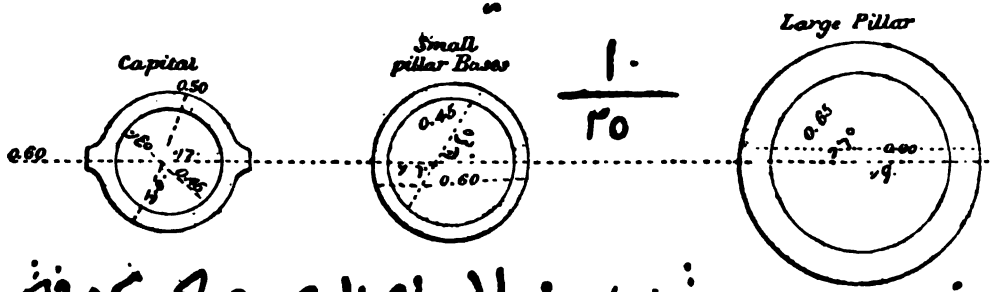


CAPITALS AND COLUMNS OF THE TEMPLE, WADY HAMZ.



DIAMETER OF THE COLUMNS, WADY HAMZ.

مقياس الفتي كراشي عمدان مشنوعه



١٠ / ٣٥

رسم قصر فريم سعيد مأخوذ في الهيئة الصحيحة بمعرفة
يوسف توفيق بك اركانه ج. بمأمورية الموبلج تحت رياسة جناب بورتن
بيك ج. ١١ ابريل ١٨٧٨

and the centre of the Libn block bears from it 339° (mag.). It stands upon the very edge of its Wady's left bank, a clifflet some twenty-five feet high, sloping inland with the usual dark metal disposed upon loose yellow sand. Thus it commands a glorious view of the tree-grown valley, or rather valleys, beneath it; and of the picturesque peaks of the Tihámat-Balawíyyah in the background. The distance from the sea is now a little over three miles—in ancient days it may have been much less.

The condition of the digging proves that the remains have not long been opened: the Baliyy state less than half a century ago; but exactly when or by whom is apparently unknown to them. Before that time the locale must have shown a mere tumulus, a mound somewhat larger than the many which pimple the raised valley-bank behind the building. A wall is said to have projected above ground, as at Uriconium near the Wrekin.* This may have suggested excavation, besides supplying material for the Bedawi cemetery to the south-west. The torrent waters have swept away the whole of the northern wall, and the treasure-seeker has left his mark upon the interior. Columns and pilasters and bevelled stones have been hurled into the Wady below; the large pavement-slabs have been torn up and tossed

* Written in pleasant memory of two visits to Uriconium, the favourite "find" of poor Thomas Wright, under the guidance of our steadfast and hospitable friend, Mr. Henry Wace, of Brooklands, Shrewsbury.

about to a chaos; and the restless drifting of the loose yellow Desert-sand will soon bury it again in oblivion. The result of all such ruthless ruining

VIEW OF THE GASR (LOOKING EAST).

Compare with photographs of the Tell Hum Synagogue, Capernaum.

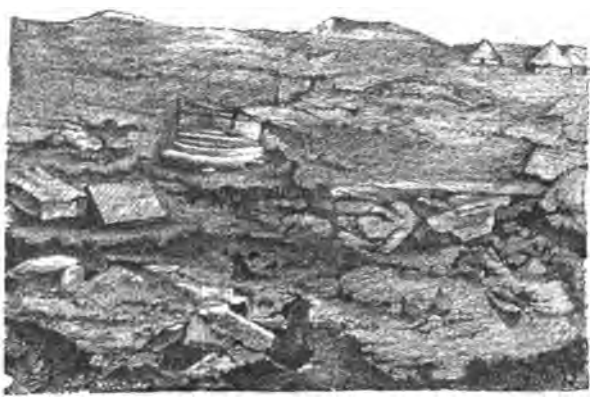
VIEW OF THE GASR (WEST WALL).

was simply null. The imaginative Nájí declared, it is true, that a stone dog had been found; but this animal went the way of the "iron fish," which all at

El-Muwaylah asserted to have been dug up at El-Wijh—the latter place never having heard of it. Wallin (p. 316) was also told of a black dog which

SITTING ON THE RUINS OF EAST WALL.

RUINS OF NORTH WALL (THROWN INTO WADY).



haunts the ruins of Karáyyá, and acts guardian to its hidden treasures. Years ago, when I visited the mouth of the Volta river on the Gold Coast, the

negroes of Cape Coast Castle were pleased to report that I had unearthed a silver dog, at whose appearance my companion, Colonel de Ruvignes, and myself fell dead. But why always a dog?

The "Palace" is a Roman building of pure style; whether temple or *nymphæum*, we had no means of ascertaining. The material is the *Rughám* or alabaster supplied by the Secondary formation; and this, as we saw, readily crumbles to a white powder when burnt. The people, who in such matters may be trusted, declare that the quarries are still open at Abú Makhárír, under the hills embosoming Abá'l-Marú. We should have been less surprised had the ruin been built of marble, which might have been transported from Egypt; but this careful and classical treatment of the common country stone, only added to the marvel.

It must have been a bright and brilliant bit of colouring in its best days—hence, possibly, the local tradition that the stone sweats oil. The whole building, from the pavement to the coping, notched to receive the roof-joists, is of alabaster, plain-white and streaked with ruddy, mauve, and dark bands, whose mottling gives the effect of marble. Perhaps in places the gypsum has been subjected to plutonic action; and we thought that the coloured was preferred to the clear for the bases of the columns. The exposed foundations of the eastern and western

walls, where the torrent has washed away the northern enceinte, show that, after the fashion of ancient Egypt, sandstone slabs have been laid underground, the calcaire being reserved for the hypæthral part. The admirable hydraulic cement is here and there made to take the place of broken corners, and flaws have been remedied by carefully letting in small cubes of sound stone. There are also cramp-holes for metal which, of course, has been carried off by the Bedawin: the rusty stains suggest iron.

The building is square-shaped, as we see from the western wall, and it evidently faced eastward with 25° (mag.) of southing. This orientation, probably borrowed from the Jews, was not thoroughly adopted in Christendom till the early fifth century, when it became a *mos*. The southern wall, whose basement is perfect, shows everywhere a thickness of 0·95 centimètre, and a total length of 8 mètres 30 centimètres. At 2 mètres 87 centimètres from the south-western corner is a slightly raised surface, measuring in length 2 mètres 15 centimètres. Mr. James Fergusson supposes that this projection, which directly fronts the eastern entrance, was the base of the niche intended for the image. On each side of the latter might have been a smaller colonette, which would account for the capital carried off by us to Egypt. Thus, adding 2 mètres 87 centimètres for the northern end swept into the valley,

we have a length of 7 mètres 89 centimetres; and the additional half thickness of the east wall would bring it to a total of 8 metres 30 centimètres.

The shrine was not *in antis*, and the site hardly admits of a peristyle; besides which, excavations failed to find it. That it might have had a small external *atrium* is made probable by the peculiarity of the entrance. Two rounded pilasters, worked with the usual care inside, but left rough in other parts because they could not be seen, were engaged in the enceinte wall, measuring here, as elsewhere, 0·95 centimètre in thickness. Nothing remained of them but their bases, whose lower diameters were 0·95 centimètre, and the upper 0·65; the drums found elsewhere also measured 0·65. The interval between the lowest rings was 1 mètre 63 centimètres; and this would give the measure of the doorway, here probably a parallelogram. Lying on the sand-slope to the north, a single capital showed signs of double brackets, although both have been broken off: * the maximum diameter across the top was 0·60 centimètre, diminishing below to 0·50 and 0·44, whilst the height was 0·40. The encircling wall was probably adorned with pilasters measuring 0·62 centimètre below, 0·45 above, and 0·11 in height: they are not shown in the plan; and I leave

* The capital was also transported to Cairo; it could not have been voluted as there were only two projections.

experts to determine whether they supported the inside or the outside surface. Several stones, probably copings, are cut with three mortice-joints or joist-holes, each measuring 0·15 centimètre, at intervals of 0·14 to 0·15.

In the tossed and tumbled interior of this *maison carrée* the pavement-slabs, especially along the south-western side, appear in tolerable order and not much disturbed; whilst further east a long trench from north to south had been sunk by the treasure-seeker. The breadth of the free passage is 1 mètre 92 centimètres; and the disposal suggested an inner

REMAINS OF THE GASR (TAKEN TO CAIRO).

peristyle, forming an *impluvium.* Thus the cube could not have been a *heroön* or tomb. Four bases of columns, with a number of drums, lie in the heap of ruins, and in the torrent-bed six, of which we carried off four. They are much smaller than the pilasters of the entrance; the lower *tori* of the bases measure 0·60 centimètre in diameter, and 0·20 in height (to 0·90 and 0·25), while the drums are 0·45, instead of 0·65. It is an enormous apparatus to

support what must have been a very light matter of a roof. The only specimen of a colonette-capital has an upper diameter of 0·26, a lower of 0·17, and a height of 0·16.

Although the Meccan *Ka'bah* is, as its name denotes, a "cube," this square alabaster box did not give the impression of being either Arab or Nabathæan. The work is far too curiously and conscientiously done; the bases and drums, as the sundries carried to Cairo prove, look rather as if turned by machinery than chiselled in the usual way. I could not but conjecture that it belongs to the days of such Roman invasions as that of Ælius Gallus. Strabo* tells us of his unfortunate friend and companion, that, on the return march, after destroying *Negrán*† (Pliny, vi. 32), he arrived at Egra or Hegra (El-'Wijh), where he must have delayed some time before he could embark "as much of his army as could be saved," for the opposite African harbour, Myus Hormus. It is within the limits of probability that this historical personage‡

* Lib. xvi. c. iv. § 24. The MSS. differ in the name of the "village situated on the sea;" some call it Egra, others Negra, after the inland settlement; and the commentator Kramer remarks, *Mire corrupta est hæc ultima libri pars.*

† North lat. 26°, which would correspond with that of the Abá'l-Marú ruins.

‡ My friend Sprenger strongly protests against Ælius Gallus, begging me to abandon him, as the Romans must long have held the whole coast to El-Haurá, their chief settlement.

might have built the *Gasr*, either for a shrine or for a *nymphæum*, a votive-offering to the Great Wady, which must have cheered his heart after so many days of "Desert country, with only a few watering-places." Perhaps an investigation of the ruins at Ras Kurkumah and the remains of Madáin Sálih may throw some light upon the mystery. In our travel this bit of classical temple was unique.

Mr. Fergusson, whose authority in such matters will not readily be disputed, calls the building a small shrine; and determines that it can hardly be a tomb, as it is hypæthral. The only similar temple known to him is that of "Soueideh" (*Suwaydah*), in the *Haurán* (De Vogüé, "Syrie Centrale," Plate IV.). The latter, which is Roman, and belonging to the days of Herod Augustus, has a peristyle here wanting: in other respects the resemblance is striking.

M. Lacaze photographed, under difficulties such as bad water and a most unpleasant drift of sand-dust, the interior of the building, the stones lying in the Wady below, and the various specimens which we carried off for the inspection of his Highness the Viceroy. Meanwhile we "pottered about," making small discoveries. The exposed foundations of the north-western wall, where the slabs of grit rest upon the sands of the cliff, afforded signs of man in the shape of a jaw-bone, with teeth apparently

modern; and above it, in the *terreplein*, we dug down upwards of a yard, without any result beyond unearthing a fine black scorpion. The adjoining Arab graveyard, adorned with the mutilated spoils of the classical building, gave two imperfect skulls and four fragments. We opened one of the many mounds that lie behind the *Gasr*, showing where most probably stood the ruined town; and we found the interior traversed by a crumbling wall of cut alabaster—regular excavation may some day yield important results. A little to the south-west lies a kind of ossuary, a tumulus slightly raised above the wavy level, and showing a central pit choked with camels' bones: at least, we could find no other.

And here I was told the Arab legend by the Wakíl; who, openly deriding the Bedawi idea that the building could be a "Castle," opined that it was a *Kanísah*, a "Christian or pagan place of worship." Gurayyim Sa'íd, "Sa'íd the Brave," was an African slave, belonging to an Arab Shaykh whose name is forgotten. One day it so happened that a *razzia* came to plunder his lord, when the black, whose strength and stature were equal to his courage and, let us add, his appetite, did more than his duty. Thus he obtained as a reward the promise of a bride, his master's daughter. But when the day of danger was past, and the slave applied for the

fair guerdon, the Shaykh traitorously refused to keep his word. The Brave, finding a fit opportunity, naturally enough carried off the girl to the mountains; solemnly thrashed every pursuing party; and, having established a "reign of terror," came to the banks of the Wady Hamz, and built the "Palace" for himself and his wife. But his love for butcher's-meat did not allow him to live happily ever after. As the land yielded little game, he took to sallying out every day and carrying off a camel, which in the evening he slew, and roasted, and ate, giving a small bit of it to his spouse. This extravagance of flesh-diet ended by scandalizing the whole country-side, till at last the owner of the plundered herds, Diyáb ibn Ghánim, one of the notables celebrated in the romance called Sírat Abú Zayd,* assembled his merry men, attacked the Gurayyim, and slew him. *Wa' s' salám!*

Here Egypt ends. We have done our work—

"And now the hills stretch home."

I must, however, beg the reader to tarry with me awhile. The next march to the north will show

* For a specimen of the superficiality which characterizes Lane's "Modern Egyptians," and of the benefits which, despite the proverbial difficulty of changing an old book into a new one, an edition, much enlarged and almost rewritten, would confer upon students, see Vol. III. Chap. XXI. Instead of a short abstract of all this celebrated story, we have only popular excerpts from the first volume.

him what I verily believe to be the old gold-mine lying around El-Marwah. It acquires an especial interest from being the northernmost known to the mediæval geographers.

El-Mukaddasi (vol. I. p. 101), in an article kindly copied by my friend, the Aulic Councillor, Alfred Von Kremer, says, "Between Yambú' and El-Marwah are mines of gold;" adding ("Itinerary," vol. i. p. 107) the following route directions: "And thou takest from El-Badr ('the New Moon')* to El-Yambú' two stages; thence to the Ras el-'Ayn (?),† one stage; again to the mine (*subaudi*, of gold), one stage; and, lastly, to El-Marwah, two stages. And thou takest from El-Badr to El-Jár‡ one stage; thence to El-Jahfah (?), or to El-Yambú', two stages each. And thou takest from El-Jiddah (Jedda) to El-Jár, or to El-Surrayn (?), four stages each. And thou takest from El-Yasrib (Jatrippa or El-Medínah) to El-Suwaydíyyah (?), or to Batn el-Nakhil (?), two stages each; and from El-Suwaydiyyah to El-Marwah, an equal distance (*i.e.* four marches); and from the Batn el-Nakhil to the mine of silver, a similar distance. And if thou seek the Jáddat Misr,§ then

* On the maritime road between Meccah and El-Medínah, celebrated for the apostolic battle which took place in A.H. 2.

† The names marked with interrogations are unknown to all the Arabs whom I consulted; they are probably obsolete.

‡ Identified by Niebuhr and Wellsted with certains ruins south of Yambú'. See Chap. IV.

§ The straight path, the highway to Egypt or Cairo.

take from El-Marwah to El-Sukyá * (?), and thence to Badá Ya'kúb,† three marches; and thence to El-'Aúníd, one march." Hence Sprenger would place Zú'l-Marwah "four days from El-Hijr, on the western road to Medina;" alluding to the western (Syrian) road, now abandoned.

And now for our march. On the finest possible morning (April 9th), when the world was all ablaze with living light, I walked down the Wady Hamz. It has been abundantly supplied with water; in fact, the whole vein (*thalweg*) subtending the left bank would respond to tapping. The well El-Kusayr, just below the ruin, though at present closed, yielded till lately a large quantity: about half a mile to the westward is, or rather was, a saltish pit surrounded by four sweet. Almost all are now dry and filled up with fuel. A sharp trudge of three-quarters of an hour leads to the *Bir el-Gurnah*(Kurnah), the "Well of the Broad," in a district of the same name, lying between the ruin and the shore. It is a great gash in the sandy bed: the taste of the turbid produce is distinctly sulphurous; and my old white mule, being dainty in her drink, steadfastly refused to touch it. The distinct accents of the Red Sea told us that we were not more than a mile from its marge.

* Elsewhere called Sukyat Yezíd, a name now forgotten.

† I have remarked that the name of the Patriarch Jacob is no longer connected with the Badá plain.

We then struck north-east, over the salt maritime plain, till we hit the lower course of the Wady *Umm Gilifayn* (Jilifayn). It heads from the seaward base of the neighbouring hills; and its mouth forms a Marsá, or "anchorage-place," for native craft. A little to the north stands tbe small pyramidal *Tuwayyil el-Kibrît*, the "little Sulphur Hill," which had been carefully examined by MM. Marie and Philipin. A slow ride of eight miles placed us in a safe gorge draining a dull-looking, unpromising block. Here we at once found, and found *in situ* for the first time, the chalcedony which strews the seaboard-flat. This agate, of which amulets and signet-rings were and are still made, and which takes many varieties of tints, lies in veins mostly striking east-west; and varying in thickness from an inch to several feet. The sequence is grey granite below, the band of chalcedony, and above it a curious schistose gneiss-formation. The latter, composing the greater part of these hills, is striped dark-brown and yellow; and in places it looks exactly like rotten wood. The small specimens of chalcedony in my private collection were examined at Trieste, and one of them contained dendritic gold, visible to the naked eye. Unfortunately the engineer had neglected this most important rock, and only a few ounces of it, instead of as many tons, were brought back for analysis.

A short and easy ascent led to a little counter-

slope, the *Majrá Mujayrah* (Mukayrah), whose whitening sides spoke of quartz. We rode down towards a granite island where the bed mouths into the broad Wady Mismáh, a feeder of the Wady 'Argah. Here, after some ten miles, the guide, Nájí, who thus far had been very misty in the matter of direction, suddenly halted and, in his showman style, pointed to the left bank of the watercourse, exclaiming, "Behold Abá'l-Marú!" (the "Father of Quartz"). It was another surprise, and our last, this snowy reef with jagged crest, at least 500 mètres long, forming the finest display of an exposed *filon* we had as yet seen; but—the first glance told us that it had been worked.

We gave the rest of the day to studying and blasting the quartz-wall. It proved to be the normal vein in grey granite, running south-north and gradually falling towards the valley-plain. Here a small white outlier disappears below the surface, rising again in *filets* upon the further side. The dip is easterly: in this direction a huge strew of ore-mass and rubbish covers the slope which serves as base to the perpendicular reef. The *Negro* quartz, which must have formed half the thickness, had been carried bodily away. If anything be left for the moderns it is hidden underground: the stone, blasted in the little outlier, looked barren. Not the least curious part of this outcrop is the black thread of iron

silicate which, broken in places, subtends it to the east: some specimens have geodes yielding brown powder, and venal cavities lined with botryoidal quartz of amethystine tinge. In other parts of the same hills we found, running along the "Marú," single and double lines of this material, which looked uncommonly like slag.

The open Wady Mismáh showed, to the east of our camp, the ruins of a large settlement which has extended right across the bed: as the guides seemed to ignore its existence, we named it the *Kharábat Abá'l-Marú*. Some of the buildings had been on a large scale, and one square measured twenty yards. Here the peculiarity was the careful mining of a granitic hillock on the southern bank. The whole vein of *Negro* quartz had been cut out of three sides, leaving caves that simulated catacombs. Further west another excavation in the same kind of rock was probably the town-quarry. The two lieutenants were directed next morning to survey this place, and also a second ruin and reef reported to be found on the left bank, a little below camp.

We have now seen, lying within short distances, three several quartz-fields, known as—*Marwah*, "the single Place or Hill of Marú" (quartz); *Marwát*, "the Places of Quartz;" and *Abá'l-Marú*, the "Father of Quartz;" not to speak of a *Nakb Abú Marwah**

* Schweinfurth (the *Athenæum*, July 6, 1878) speaks of a "Wadi Abu Marwa ('Quartz Valley')" south of the Galalah block.

further north. The conclusion forced itself upon me that the name of the celebrated Arab mine *Zú'l-Marwah* or *El-Marwah*, the more ancient Μόχουρα (Mochura), which Ptolemy places in north lat. 24° 30', applied to the whole district in South Midian, and then came to denote the chief place and centre of work. To judge by the extent of the ruins, and the signs of labour, this focus was at *Umm el-Karáyát* (the "Mother of the Villages"), which, as has been shown, is surrounded by a multitude of miner-towns and *ateliers*. And the produce of the "diggings" would naturally gravitate to El-Badá, the great commercial station upon the Nabathæan "Overland."

Thus *El-Marwah* would signify "the Place of Marú," or "Quartz-land," even as Ophir means "Red Land." A reviewer of my first book on Midian objects to the latter derivation; as "Seetzen, among others, has conclusively shown that Ophir, the true translation of which is 'riches,' is to be looked for in Southern Arabia." *Connu!* But I question the "true translation;" and, whilst owning that one of the Ophirs or "Red Lands" lay in the modern Yemen, somewhere between Sheba (*Sabá*) and Havilah (*Khaulán*), I see no reason for concluding that this was the only Ophir. Had it been a single large emporium on the Red Sea, which collected the produce of Arabia and the exports of India and of

West Africa, the traditional site could hardly have escaped the notice of the inquiring Arabian geographers of our Middle Ages. The ruins of a port would have been found, and we should not be compelled theoretically to postulate its existence.

* * * * * *

And now nothing remained but to escape as quickly as possible from the ugly Wady Mismáh; with its violent, dusty wester, or sea-breeze, and its sun-glare which, reflected and reverberated by the quartz, burned the grass and made the trees resemble standing timber.

April 10th saw the last of our marches, a hurry back to the stable, a *sauve qui peut*. The camel-men, reckless of orders, began to load and to slip away shortly after midnight. Ali Marie, who, as usual, had lost his head, when ordered to enjoin silence gave the vain and vague direction, "Tell the Arabs to tell the camels not to make so much noise." Even the bugler sounded the "general" of his own accord; and the mules, now become painfully intelligent, walked as if they knew themselves to be walking homewards. Our last stage lay over the upper skirts of the maritime plain which has already been noticed. At 10.15 a.m., after riding five hours and thirty minutes (= seventeen miles), we found ourselves once more upon the seaboard. Our kind host, Captain Hasan Bey, came to meet us in his

gig: the quarter-deck had been dressed with flags, as for a ball; and before twelve bells struck, we had applied ourselves to an excellent breakfast in the gun-room of our old favourite, the *Sinnár*. The auspicious day of course ended with a *fantasia*.

RÉSUMÉ OF OUR LAST JOURNEY.

We had left the Sharm Yáhárr on March 21st, and returned to it on April 13th; a total of twenty-four days. Our actual march through South Midian, which had lasted thirteen days (March 29—April 10), described a semicircle with El-Wijh about the middle of the chord. The length is represented by 170 miles in round numbers: as usual, this does not include the various offsets and the by-paths explored by the members; nor do the voyages to El-Wijh and El-Haurá, going and coming, figure in the line of route. The camels varied from fifty-eight to sixty-four, when specimens were forwarded to the harbour-town. The expenditure amounted to £92 13*s*., including pay and "bakhshísh" to the Baliyy Shaykhs, but not including our friends the Sayyid, Furayj, and the Wakíl Mohammed Shahádah.

This southern region differs essentially from the northern, which was twice visited, and which occupied us two months, mostly wasted. Had we known what we do now, I should have begun with the

south, and should have devoted to it the greater part of our time. Both are essentially mining countries; but, whilst the section near Egypt preserves few traces of the miner, here we find the country carefully and conscientiously worked. The whole eastern counterslope of the outliers that project from the Ghát-section known as the mountains of the *Tihámat-Balawiyyah*, is one vast outcrop of quartz. The parallelogram between north lat. 26°, including the mouth of the Wady Hamz, and north lat. 27°, which runs some fifteen miles north of the Badá plain, would form a Southern Grant, sufficiently large to be divided and subdivided as soon as judged advisable.

If the characteristics of North Midian (Madyan Proper) are its argentiferous, and especially its cupriferous ores, South Midian worked chiefly gold and silver, both metals being mentioned by the mediæval geographers of Arabia. Free gold in *paillettes* was noticed by the Expedition in the micaceous schists veining the quartz, and in the chalcedony which parts the granite from the gneiss. The argentiferous *Negro* quartz everywhere abounds, and near the ruins of Badá lie strews of spalled "Marú," each fragment showing its little block of pure lead. Saltpetre is plentiful, and a third "Sulphur hill" rises from the maritime plain north of the Wady Hamz.

The principal ruins and *ateliers* number five; these, beginning from the north, are the Umm el-Karáyát, the Umm el-Haráb, the Bújat-Badá, the Kharábat Abá'l-Marú, and the old Nabathean port, El-Haurá. Amongst them is not included the gem of our discovery, the classical shrine, known as Gasr Gurayyim Sa'íd, nor the minor *ateliers*, El-Kubbah, Abá'l-Gezáz, and the remains upon the Marwát ridge. Good work was done by the Egyptian Staff-officers in surveying the fine harbour of El-Dumayghah, so well fitted as a refuge for pilgrim-ships when doing quarantine; and I venture upon recommending, to the English and Egyptian Governments, my remarks concerning the advisability of at once re-transferring the station to El-Wijh. It is now at Tor; and, as has been said, it forms a standing menace, not only to the Nile Valley, but to the whole of Europe.

Whilst abounding in wood, the Southern Country is not so well watered as are Central and Northern Midian. On the other hand, the tenants, confined to the Baliyy tribe, with a few scatters of the despised Hutaym, are milder and more tractable than the Huwaytát. As I have remarked, they are of ancient strain, and they still conserve the instincts of their predecessors, or their forefathers, the old mining race. It will be necessary to defend them against the raids and incursions of the Juhaynah, or "Sons

of Dogs," who border upon them to the south, and from the Alaydán-'Anezah to the south-east; but nothing would be easier than to come to terms with the respective Shaykhs. And the sooner we explore the Jaww, or sandstone region in the interior, with its adjacent "Harrahs," the better for geography and, perhaps not less, for mineralogy. The great ruins of Madáin Sálih upon the Wady Hamz still, I repeat, await the discoverer.

CONCLUSION.

THE next day saw us at El-Wijh, dispensing pay and "bakhshísh" to the companions of our Desert march; and shipping the men and mules, with the material collected during the southern journey. The venerable Shaykh 'Afnán and his Baliyy were not difficult to deal with; and they went their way homewards fully satisfied. We exchanged a friendly adieu, or rather an *au revoir*, with our excellent travelling companion, Mohammed Shahádah; and I expressed my sincere hopes to find him, at no distant time, governor of the restored Quarantine-station.

On the morning of April 12th we set out betimes, and anchored for the night in one of the snug bays of Jebel Nu'man. The next day placed us at the Sharm Yáhárr, where the process of general distribution happily ended. Here the final parting took place with the gallant companions of our four months' travel. Shaykh Furayj, delighted with the gift, in addition to his pay, of a Styrian

skean-dhu and an Austrian Werndl-carbine, at once set off to rejoin the tribe up-country; while the Sayyid steadfastly stayed with us to the last. These men had become our friends; and my sorrow at leaving them was softened only by the prospect of presently seeing them again.

Immediately after my return to Cairo I strongly recommended the Sayyid for promotion, in these words:—"First and foremost is the Sayyid 'Abd el-Rahím, the head of a noble family, settled for generations at El-Muwayláh, where he is now *Kátib* ('accountant') to the Fort. He knows thoroughly the whole Land of Midian; he is loved and respected by all the Arabs, and both he and his are devoted to the Government of your Highness. Evidently it would be advantageous to promote such a man to the post of governor of the place—a post which will presently become of high importance, and which is actually held by an old officer, almost bed-ridden.

"The second is Shaykh Mohammed Shahádah, of El-Wijh, a man of family and position; known far and wide, and made generally popular by his generous and charitable actions. He was formerly *Wakíl*, or 'agent,' to the Fort el-Wijh, until that office was abolished. The port will presently have its custom-house; and I propose forwarding to her Britannic Majesty's Government my notes upon the

subject of the Quarantine-station, which has imprudently been transferred from Arabia to Tor, in the Sinaitic Peninsula. Meanwhile it would, I venture to suggest, be most advantageous if Mohammed Shahádah were named governor of his native place."

The Expedition, in its urgent desire to return northwards, was not seconded by weather. Despite an ugly gale, the *Sinnár* boldly attempted giving the slip to Arabia on April 16th, but she was beaten back before she reached El-Muwaylah. After another stormy day, we again got up steam; and, fighting hard against adverse winds and waves, greatly to the distress of the unfortunate mules and gazelles, we reached Suez on April 20th.

At Suez my wife had been awaiting me for long weeks, preferring the simplicity of the Desert to the complex life of Cairo. Some delay was again necessary in order to telegraph our arrival, to apply for a special train, and to sort and pack in the travelling-cases our twenty-five tons of specimens. As often happens, the return to civilization was in nowise cheery. Everything seemed to go wrong. For instance, the Dragoman despatched to town from the New Docks in order to lay in certain comforts, such as beef and beer, prudently laid out the coin in a brand-new travelling suit intended for his own service. Such an apology for a dinner had not been seen during the last four months

of wild travel—unpleasant when guests have been bidden to a feast! The night at the Docks, also, was a trifle mortuary, over-silent and tranquil: all hands, officers and men, who could not get leave to sleep ashore, simply took leave—I believe myself to have been for a time both captain and crew of the *Sinnár*. And, lastly, we heard that both our dog-companions, Juno and Páijí, had died of some canine epidemic.

The next day ended our halt at Suez, with visits to slop-shops and a general discussion of *choppes*. The old hotel, under the charge of Mr. and Mrs. Adams, had greatly improved by the "elimination" of the offensive Hindi element; and my old friends of a quarter-century's standing received me with all their wonted heartiness. Sa'íd Bey was still a Bey, but none the less jovial and genial; Captain Ali Bey, who had commanded the *Sinnár*, was now acting commodore; and my only regret was having again missed Colonel Gordon (Pasha).

April 22nd convinced us that, even in these prosaic regions, our misadventures and accidents had not reached their fated end. A special train had been organized by Hanafi Effendi for eight a.m. About ten miles from Suez one of the third-class carriages began "running hot;" and, before we could dismount, the axle-box of a truck became a young Vesuvius in the matter of vomiting smoke.

I ordered the driver, who was driving furiously, to make half speed; but even with this precaution there were sundry stoppages; and at the Naffíshah station, where my Bolognese acquaintances still throve, we could not be supplied with a change of "rolling-stock." About Tell el-Kabír, the brake-van also waxed unsafely warm; but it reached Zagázig without developing more caloric. Briefly, we caught fire three times in one morning.

These accidents must always be expected, where spare carriages are placed for months upon sidings to become tinder in the sun; and where the cracks and crevices of the woodwork fill up with the silicious sand of the Desert, an admirable *succedaneum* for flint and steel. One consolation, however, remained to us: the Dragoman, brand-new clothes and all, was left behind at Suez. His last *chef d'œuvre* of blundering has already been noticed *— the barrel of Midianitish oysters sent to Admiral M'Killop (Pasha) had been so carelessly headed up, and so carefully turned topsy-turvy, that the result was, to use my friend's words, they could be nosed from the half-way station. The "Kyrios" had probably passed a Bacchanalian night with his Hellenic friends, and he subsequently made act of presence at Cairo with a very British-looking black eye. His accident at Suez was a bit of "poetical justice,"

* Chap. IX.

which almost convinced one of the "moral government."

A succulent breakfast *à la fourchette*, in the charming garden of our friend M. Vetter, of Zagázig, duly discussed, we again went "on board," amusing the lookers-on by our naïve enjoyment of the Nile-valley: they had not been in Arabia, and they found the "emerald-green" dusty and yellow. We reached Cairo at 5.30 p.m. More troubles! Ten minutes after arrival we found ourselves in possession, in sole charge of the *gare*. The train was loaded with Government property, officers, soldiers and escort, mules, boxes and bags of specimens whose collecting had cost money. Yet station-master, agent, and *employés* at once went their ways, declining even to show the room allotted to our goods, although a telegram from the railway authorities had advised me that one had been made ready. The assistant-agent, when at last hunted up, declared, before vanishing once more, that the porters for whom we applied were busy loading cotton, and that we must e'en do the best we could for ourselves. So the waggons were shunted and unloaded by their tenants, and the minerals were deposited under a kind of shed whose key was not forthcoming. We failed to find even a light, till the local train from Suez was announced; and, when it began whistling, the officials, who had returned like rats from their

holes, gave us peremptory directions to shunt again. This time, however, I had the game in my hands; and replied by taking due precautions against being turned out.

At first the soldier-escort worked as well as could be expected; but the numbers fell off every quarter of an hour, till we were left with a very select party; the only recipients, by-the-by, of "bakhshísh." The Sub-Lieutenant Mohammed Effendi mounted a donkey the moment he stepped out of the R.R. carriage; and, utterly disregarding so vexatious a frivolity as asking leave, rode off to his home at Torah. His example was followed by the Sergeant Mabrúk 'Awaz. And yet both these men had the impudence to call upon me at the hotel, and to apply for especial *Shahádahs*, or "testimonials" of good conduct. In short, we were detained at the station for three mortal hours, working with our own hands. If this be a fair specimen of European management in Egypt, and I am told that it has now become worse, much worse in every way, the sooner we return to Egyptian mismanagement the better. The latter is, at any rate, cheap and civil.

On the next day the Viceroy graciously sent his junior Master of Ceremonies, his Excellency Tonino Bey, to welcome me back; and I was at once honoured with audiences at the Khedivial Palace,

'Abidin, and by Prince Husayn Kámil Pasha at Gizah (*Jízah*). The Khediv was pleased to express satisfaction with my past exertions, and ordered several measures to be carried out at once. Amongst them was a little exhibition of mineralogy and archæology, maps and plans, sketches and *croquis*, at the Hippodrome.

I need hardly say that his Highness at once saw the gist of the matter. Many concessions had been applied for, even from Australia; but the Viceroy determined that, before any could be granted, careful analyses of the specimens must be made, at his Highness's private expense, in London. M. Ferdinand de Lesseps, of world-wide fame, volunteered, in the most friendly way, to submit *échantillons* of the rocks to the Parisian Académie des Sciences, of which he is a distinguished member. The Viceroy was also pleased spontaneously to remind me of, and to renew, the verbal promise made upon my return from the first Expedition to Midian; namely, that I should be honoured with a concession, or that a royalty of five per cent. on the general produce of the mines should be the reward of discovery. The young Minister of Finance, Prince Husayn Kámil Pasha, after courteously congratulating me upon the successful result of our labours, put as usual the most pertinent of questions.

The opening of our little *Exposition* was delayed by sundry difficulties. The Greek Easter set in with its usual severity about later April. A general shop-shutting, a carouse unlimited, catholic, universal; and, despite stringent police orders, a bombardment of the town by squibs and crackers, were the principal features of the *fête*. The 29th was the classical *Shamm el-Nasím*, or "the Smelling of the Zephyr," a local May-day religiously kept with utter idleness. Mr. W. E. Hayns and I utilized it by going a flint-hunting on the left bank of the Nile.* Then the terrible "May coupon" gave immense trouble and annoyance to the rulers; who, so far from making merry with the lieges, had to work in person between five a.m. and midnight. After such exertion as this, rest was of course necessary. Subsequently, a grand review monopolized one day; another was spent by the Court in despatching the young Prince Fu'ád to Switzerland; and yet another was given to his Highness the Prince Hasan Pasha, Commander-in-Chief of the Egyptian auxiliaries, who, on the conclusion of the war, had returned to Cairo *en route* for Europe.

Briefly, it was not before May 9th that the Khediv, accompanied by the *Prince héritier*,

* A paper describing our "finds" was read before the Anthropological Section of the British Association Meeting at Dublin on August 21, 1878, and subsequently before the Anthropological Institute of London (December 10, 1878).

Taufík Pasha, found leisure personally to open the Exhibition—the first, by-the-by, ever honoured with the Viceregal presence. Despite all my efforts, the rooms, which should have been kept clear till his Highness had passed through, were crowded at an early hour. The maps prepared at the Citadel by Lieutenants Amir and Yusuf, with the aid of three extra hands, were very imperfect, half finished at the last moment, and abounding in such atrocities as "Ouorh" for "El-Wijh." The engineer, M. Marie, when asked aloud, and with all publicity, by the Khediv whether he was sure that such and such specimens contained gold, shirked a direct reply, evasively declaring that "Midian is a fine mining country." He had pointed out to me the precious metal during our exploration of Umm el-Karáyát; but such is the wretched result of "knowing the people," instead of telling the truth like a man. And one of the many jealous, a mild Mephisto., whispered in the Viceregal ear, "There can't be much gold there, or *ces messieurs* would have said more about it."

Despite these small *contretemps* the Exhibition* was pronounced a success, and served, as such things

* The following was the announcement offered to the public:—

"La collection minéralogique et archéologique rapportée par le Capitaine Burton, de sa seconde Expédition au pays de Midian, est exposée dans les salles de l'Hippodrome, avant d'être envoyée

do, for a nine days' wonder. Several travellers from England and Australia took the opportunity of inspecting the rocks; and I was much encouraged to find the general opinion so highly favourable. Locally there were dissidents, but this must be expected where interests differ.

Meanwhile his Highness kept me hard at work.

à l'Exposition Universelle de Paris, sous la direction de M. G. Marie, ingénieur des mines.

"La salle du sud renferme les croquis et les aquarelles faits par M. E. Lacaze.

"La partie du nord commence avec Akabah, point extrême atteint par l'Expédition; elle contient les résultats du premier voyage de l'Expédition, c'est-à-dire: Shermá, Djebel el-Abiat, Aynouneh, Moghair-Schuaib, Mokna et Akabah.

"Le mur de l'est contient tout ce qui se rapporte à la seconde exploration, c'est-à-dire l'Hismá et le grand massif du Shárr.

"Le mur du sud contient les principaux points de vue pris au sud du pays de Midian: Wedje, la forteresse, la montagne de Omm-el-Karáyát, travaillée par les anciens, la mine de Omm el-Hárab, le temple antique, etc., etc.

"Sur la table sont les médailles et la collection anthropologique fait par le Capitaine Burton.

"La salle du nord contient la collection géologique et minéralogique faite par M. G. Marie; les minéraux sont classés suivant l'ordre des pays parcourus, c'est-à-dire en commençant à Akabah et finissant au Ouadi Hamz, frontière du Hedjaz.

"Tout autour de la salle sont rangées les vingt caisses contenant les échantillons que Son Altesse le Khédive envoie en Angleterre pour y être analysés. Près de la porte de l'est sont placés les restes du temple de l'Ouadi Hamz, les moulins pour écraser le quartz, les briques réfractaires, et enfin les inscriptions Nabathéennes.

"Dans les loges de l'Hippodrome, derrière les deux salles, sont déposés environ quinze tonnes d'échantillons, destinés à être analysés par une Commission locale, nommée par Son Altesse le Khédive."

I was directed to draw up a concise general description of the province; to report upon the political and other measures by which the Midian country would be benefited; and, lastly, to suggest the means which, in my humble opinion, were best calculated for successfully working the mines. In former days the Viceroy would at once have undertaken the task, and probably would have sent down five thousand men to open the diggings. Now, however, the endless trickery of European adventurers and speculators has made a wise precaution absolutely necessary. During the last audience, his Highness ably and lucidly resumed the history of the past measures, and the steps which he proposed for the future. The first Khedivial Expedition had been simply one of exploration, sent to ascertain whether the precious metals really existed. The second was intrusted with the charge of laying down the probable limits of the mining formation; and of bringing back varied specimens, in quantities sufficient for scientific analysis. The third and next step would be to organize a *Compagnie de Recherche*, with the object of beginning a serious exploitation. The future thus settled, I was kindly and courteously dismissed, with a desire that I should take charge of the specimens, and personally superintend the work of assaying. Mr. Charles Clarke received pay

and leave for three months, and was ordered to convey the boxes by "long sea."

On May 10th we left Cairo in company with our friend Mr. Garwood, C.E. At Alexandria a great repose fell upon my spirit; it was like gliding into a smooth port after a storm at sea. All the petty troubles and worries of Cairo; the *cancans*, the intrigues, the silly reports of the envious and the jealous, with the buzz and sting of mosquitoes; the weary waiting; the visits of "friends" whose main object in life seemed to be *tuer le ver;* and the exigencies of my late fellow-travellers, who, after liberal pay and free living for four months, seemed determined to quarter themselves upon the Egyptian Government for the rest of their natural lives;—all these small cares, not the less annoying because they were small, disappeared like magic at the first glimpse of blue water. I had barely time to pass an afternoon at Ramleh, "the Sand-heap," with an intimate of twenty-five years' standing, Hartley John Gisborne, an old servant of the Egyptian "Crown," for whom new men and new measures have, I regret to see, made the valley of the Nile no longer habitable.

The next Sunday placed us on board the Austro-Hungarian Lloyd's screw-steamer *Austria* (Capitano Rossol). As usual, the commander and officers did all they could to make their voyagers comfort-

able; the Company did the contrary. At this spring season, true, the migratory host of unfeathered bipeds crowds northwards; even as in autumn it accompanies the birds southwards. But when berths are full, passengers should be refused; and if the commercial director prefers dead to live goods, travellers should be duly warned. The accommodation would have been tolerable in a second-class or third-class English steamer, which charges fifteen shillings to a sovereign per diem; here, however, we were paying between £2 and £3.

The Alexandrian agent had been asked to lodge us decently. My wife found herself in a cabin occupied by two nurses. I was placed in a manner of omnibus, a loose box for six, of whom one was an Armenian and two were Circassians from Daghistán—good men enough, but not pleasant as bedroom fellows. No extra service had been engaged for an extra cargo of seventy-two; that is, forty-two first, and thirty second class. There were only three stewards, including the stewardess; and the sick were left to serve themselves. At least half a dozen were required; and, in such places as Trieste and Alexandria, a large staff of cooks and waiters can always be engaged in a few hours. On board any English ship some of the smartest and handiest seamen would have been converted into temporary attendants—here no one seemed to think of a pro-

ceeding so far out of the usual way. There was only one, instead of three or four cooks; and the unfortunate had to fill a total of one hundred and thirty-five mouths, the crew included, three times a day. The other tenant of the close and wretched little galley lay sick with spotted typhus; and, after barbarous neglect, he died on the day following our arrival at Trieste—I did not hear that the surgeon of the screw-steamer *Austria* had met with his deserts by summary dismissal from the service. The Austro-Hungarian Lloyd's was once famed for good living; over-economy and high dividends have now made the *cuisine* worse than the cheapest of *tables d'hôte*. Provisions as well as their preparation were so bad that Sefer Pasha, an invalid, confined himself to a diet of potatoes and eggs.

Add the quasi-impossibility of obtaining a bath; the uncleanliness of the offices; the hard narrowness of the sofas; the small basins, or rather bowls, and the tiny towels like napkins; the clamorous pets of the small fry, cats and dogs; the crowding of second-class passengers on the quarter-deck; and the noise of the Armenian lady beating her maid, who objected to the process in truly dreadful language: throw in an engine which, despite the efforts of her energetic English engineer, Mr. Wilkinson, managed only nine instead of eleven and a half knots an hour; an ugly north-easter off Cape Matapan, bringing tropi-

cal downfalls of rain; and a muggy Scirocco off Istria, when we breathed almost as much water as air: and I think that the short entry in my journal, "horridly uncomfortable," was to a certain extent justified by the conduct of the poor *Austria*. Yet the Austro-Hungarian Lloyd's boasts a dividend of seven per cent. She shall see no more of my money: until she mend her ways I shall prefer the Genoese *Rubattino*.

But, as the Persian poet has it, *In nîz bug'zared*—"Even these things pass away." At Corfu we were cheered by once more meeting Sir Charles Sebright, who looked hale and hearty as of yore. When we reached Trieste, his Excellency Baron Pino von Friendenthall, accompanied by the most amiable of "better halves," came off in his galley, happily unconscious of typhus; and carried us away without the usual troubles and delays of landing in harbour bumboats. Friendly faces smiled a welcome; and, after an absence of some seven months, I found myself once more in the good town which has given us a home during the last five years.

At Trieste I was delayed for some time, awaiting the report that the specimens collected by the Expedition had arrived at their destination, the warehouses of the London Docks. Mr. Clarke met with obstacles at Suez; and, consequently, did not reach England till June 20th, after twenty-three rough

days. As her Majesty's Foreign Office had been pleased to accord me two months of leave to England, I determined to make the voyage by "long sea." Both suffering from the same complaint, want of rest and of roast-beef, as opposed to *rosbif*, we resolved to ship on board the English steamer *Hecla*, of the B. and N. A. R. M. S. P. Company, the old Cunard line, famous for never having lost a life, a ship, or a letter. We left Trieste on July 7, 1878, in charge of our excellent commander, Captain James Brown; and, after a cruise of twenty days, *viâ* Venice, Palermo, and Gibraltar—a comfortable, cheery, hygienic cruise in charming weather over summer seas—we found ourselves once more (July 26th) in the city of the Liver.

APPENDIX I.

DATES OF THE THREE JOURNEYS (Northern, Central, and Southern) made by the Second Khedivial Expedition.

FIRST JOURNEY.

(*December* 19, 1877, *to February* 13, 1878.)

December 6, 1877, left Cairo.
10 „ left Suez.
14 „ reached El-Muwaylah (Sharm Yáhárr) on the "Day of 'Arafát."

* * * * * *

December 19, 1877, landed at El-Muwaylah.
21 „ marched upon Wady Tiryam.
22 „ „ „ Wady Sharmá.
23 „ „ „ Jebel el-Abyaz.
30 „ returned to Wady Sharmá.
January 7, 1878, marched upon 'Aynúnah.
8 „ halted at 'Aynúnah.
9 „ „ Wady el-'Usaylah.
10 „ reached Magháir Shu'ayb.
25 „ marched upon Makná.
February 3 „ embarked for the Marsá Dahab in the Sinaitic Peninsula.
4 „ to the anchorage of El-Nuwaybi'.
5 „ anchored at Pharaoh's Island.
6 „ halted „ „
7 „ steamed to El-'Akabah town.
8 „ ran down Gulf el-'Akabah.
9 „ anchored under Tírán Island.
10 „ halted at Tírán Island.

February 11, 1878 ran from wrecking to Sináfir Island.
12 „ halted at Sináfir Island.
13 „ returned to El-Muwaylah (Sharm Yáhárr).

SECOND JOURNEY.

(*February* 17, 1878, *to March* 8, 1878.)

February 17, 1878, walked to ruins of Abú Hawáwít.
18 „ marched upon the Safh Jebel Malfh in the Wady Surr.
19 „ camped in the Sayl Wady el-Jimm.
20 „ marched upon El-Nagwah.
21 „ reached the head of the Wady Sadr.
23 „ camped below the *Col*, "El-Khuraytah."
24 „ reached the Hismá.
25 „ descended the two Passes and camped in the "Jayb el-Khuraytah."
26 „ marched upon the Majrá el-Ruways.
27 „ „ „ „ Wady Dámah.
28 „ „ „ „ ruins of Shuwák.
March 1 „ halted at the ruins of Shuwák.
2 „ visited the ruins of Shaghab and camped at the Majrá el-Wághir.
3 „ visited the ruins El-Khandakí and camped at the plain El-Kutayyifah.
4 „ marched down the Wady Salmá and camped at the Má el-Badí'ah.
5 „ reached Zibá town.
6 „ halted at Zibá.
7 „ visited the turquoise-diggings of Zibá and camped at the Máyat el-Ghál.
8 „ returned to El-Muwaylah (Sharm Yáhárr).

COMPLEMENTARY EXCURSION TO THE SHÁRR MOUNTAIN.

March 13, 1878, camped in the Wady el-Káimah.
14 „ „ „ Wady el-Kusayb.
15 „ „ „ Safhat el-Wu'ayrah.
16 „ up the Shárr.
17 „ camped in the Wady Kuwayd.
18 „ returned to El-Muwaylah (Sharm Yáhárr).

THIRD JOURNEY.

(*March* 21, 1878, *to April* 10, 1878.)

March 21, 1878, left Sharm Yáhárr and made the Sharm Dumayghah.
22 „ halted at El-Dumayghah.
23 „ anchored in harbour of El-Wijh.
24 „ set out in the *Sinnár* southwards.
25 „ anchored at El-Haurá.
26 „ halted „ „

(On March 26th MM. Marie and Philipin marched from El-Wijh to the Wady Hamz, and rejoined head-quarters on the 28th.)

March 27, 1878, returned to El-Wijh.
29 „ left El-Wijh and camped at inner fort.
30 „ to Umm el-Karáyát (ruins and mine).
31 „ visited ruins of El-Kubbah; camped in Wady Dasnah.
April 1, 1878, to Umm el-Haráb (ruins and mine).
2 „ camped in the Wady Abá'l-Gezáz.
3 „ „ „ plain of Badá.
4 „ halted at the „ „
5 „ camped at the Ayn el-Kurr.
6 „ „ in the Wady Laylah.
7 „ „ „ Wady Abá'l-'Ajáj.
8 „ to the ruins of the Gasr Gurayyim Sa'íd (classical temple).
9 „ to the Abá'l-Marú (Marwah mine).
10 „ return to El-Wijh.

THE RETURN TO EGYPT.

April 12, 1878, steamed northwards to Nu'man Island.
13 „ reached El-Muwaylah (Sharm Yáhárr).
18 „ left El-Muwaylah, night at sea.
19 „ in Gulf of Suez.
20 „ reached Suez.
22 „ „ Cairo.

APPENDIX II.

EXPENSES OF THE EXPEDITION TO MIDIAN, commanded by Captain R. F. Burton, H.B.M. Consul, Trieste.

CAIRO, *November* 1, 1877.

	£	s.	d.
Sum received from Egyptian Finance	1977	12	0

AMOUNTS PAID OUT BY ORDER OF CAPTAIN BURTON.

	£	s.	d.
Hotel bills for five persons (thirty-six days) ...	149	6	9
Advanced to members of Expedition up to date (May 3rd) *...	74	12	3
Cost of provisions for journey to Midian, fourteen persons	314	8	9
Cost of tools, chemicals, instruments, canteen, etc.	185	19	0
Medicine chest from Dr. Lowe	10	10	0
Journey to Suez from Cairo, December 6th, 1878 :—			
Hotel bill for eleven persons (three days) ...	33	3	6
Tobacco for presents to Bedawin ...	6	8	0
Sundries	13	10	6
Telegrams and post service	3	9	0
	£791	7	9

* M. Marie, £35 12*s.*; Haji Wali, £23; M. Philipin, £12 4*s.*; M. Lacaze, £3 16*s.*

	£	s.	d.
Brought forward	791	7	9
El-Muwaylah, December 16th, to return, February 13th:—			
Journey to north *	316	14	3
Post service	14	8	0
Cost of sheep †	32	14	0
Sundries ‡	20	7	7
Five foot-soldiers' salaries	7	4	0
Eastern journey to the Hismá §	187	6	6
Post service	3	8	0
Cost of sheep †	11	19	0
Sundries	5	11	0
Sambúk from Suez, as per contract	9	4	0
Soldiers from fort	3	0	0
Journey to Shárr ‖	44	11	6
Cost of sheep †	3	4	0
Thirty pairs of boots for soldiers ¶	6	0	0
Sundries	1	0	0
Journey to south **	92	13	0
Cost of sheep †	15	16	0
Post service	2	0	0
Sundries ‡	18	3	6
Special payments:—			
Sayyid 'Abd el-Rahím Effendi	16	0	0
Bukhayt	1	12	0
Husayn	1	12	0
Shaykh Furayj	4	0	0
„ salary for twenty-five days ...	5	0	0
Expenses at Suez, unloading, etc., and hotel bills for ten persons	39	17	0
Post and telegrams	1	16	0
Suez to Cairo	1	12	6
Carried forward ...	£1658	1	7

* Starting with a hundred camels and three Shaykhs.
† For all hands. ‡ Includes "bakhshísh."
§ Sixty-one camels, four Shaykhs. ‖ Fifty camels, three Shaykhs.
¶ Got from *Mukhbir*. ** Fifty-eight camels, three Shaykhs.

	£	s.	d.
Brought forward	1658	1	7
Expenses at Cairo up to date May 5, 1878 :—			
Unloading, cartage, and preparing for Exhibition	24	5	5
Salaries of persons engaged from Cairo and Muwaylah :—			
Anton Dimitri, Giorgi, and Petro * ...	93	17	6
Magazine-man at El-Muwaylah †	6	8	0
Sais from Suez, engaged through governor ‡	9	0	0
Mr. Clarke's salary §	180	0	0
	1971	12	6
In hand for small expenses not yet sent in for payment	5	19	6
	£1977	12	0

Sent in May 6, 1878.

(Signed) CHAS. CLARKE.

(Countersigned) RICHARD F. BURTON.
Commanding Expedition.

* Six months' pay. † Four months. ‡ Four months and a half.
§ Employed on special service.

APPENDIX III.

PRESERVED PROVISIONS AND OTHER STORES, supplied by Messrs. Voltéra Bros., of the Ezbekiyyah, Cairo.

	£	s.	d.
95 okes potatoes, at 5*d.*	1	19	7
670 „ best rice, at 8½*d.*	23	14	7
152 „ sugar, at 11½*d.* per kilog.	8	19	6½
60 „ ground coffee, at 4*s.* 6*d.*	13	10	0
120 tins milk, at 14*s.*	7	0	0
120 bottles pickles	6	0	0
15 tins butter (of 1 lb.), at 2*s.* 6*d.*	1	17	6
60 okes oil, at 2*s.* 6*d.*	7	10	0
6 heads English cheese (60¼ lbs.), at 1*s.* 5*d.* ...	4	10	4½
160 okes dried French beans, at 10*d.* ...	6	13	4
60 „ maccaroni and paste	3	0	0
54 „ onions, at 7*d.*	1	11	6
10 „ garlic, at 10*d.*	0	8	4
50 packets candles	2	10	0
5 okes cavendish tobacco, at 12*s.*	3	0	0
6 „ tobacco (Turkish), at 24*s.*	7	4	0
120 bottles soda-water, at 8*d.* per dozen	4	0	0
20 „ syrups, at 2*s.*	2	0	0
50 „ vinegar	2	10	0
10 dozen beer, at 11*s.*	5	10	0
15 bars soap, at 1*s.* 6*d.*	1	2	6
20 pots mustard, at 1*s.* 6*d.*...	1	10	0
6 bottles curry, at 1*s.* 6*d.*	0	9	0
20 lbs. table raisins	0	16	0
10 large bottles pepper, at 2*s.*	1	0	0
Carried forward	£118	6	3

	£	s.	d.
Brought forward	118	6	3
10 small packets salt, at 1s.	0	10	0
5 large „ „ at 1s. 6d.	0	7	6
6 bottles sauces, at s. 12d.	0	7	0
12 „ lime-juice, at 2s. 6d.	1	10	0
12 umbrellas, at 4s.	2	8	0
12 bottles blacking, at 1s. (for tracing inscriptions)...	0	12	0
6 lanterns, at 1s. 6d.	0	9	0
12 large tins sardines, at 1s. 6d.	0	18	0
2 corkscrews, at 1s. 3d.	0	2	6
2 opening knives	0	2	0
101¼ okes of biscuits, at 1s.	5	1	3
1 case Mumm's champagne	4	5	0
1 „ cognac, XX	2	8	0
1 „ whisky	1	16	0
1 tin plum-pudding	0	2	6
10 packets matches, at 1s. 2d.	0	11	8
8 barrels flour, at £3	24	0	0
4 okes Curani (Koráni) tobacco, at 16s.	3	4	0
30 lbs. tea, at 4s.	6	0	0
24 tins green peas, at 1s.	1	4	0
18 „ haricots verts, at 1s.	0	18	0
18 „ „ flageolets, at 1s.	0	18	0
18 „ champignons, at 1s. 2d.	1	1	0
18 „ macedoine, at 1s.	0	18	0
8 „ carrots, at 1s.	0	8	0
16 „ asparagus (large), at 3s.	2	8	0
53½ lbs. ham, at 1s. 6d.	4	0	3
100 bottles 'Ráki, at 2s.	10	0	0
100 tins meats, at 1s. 6d.	7	10	0
4 dozen pints beer, at 8s.	1	12	0
7 empty tins for coffee, at 1s. 6d.	0	10	6
17 „ bags	0	14	2
4 okes packing rope, at 2s.	0	8	0
¼ „ isinglass	0	3	0
2 bottles spices	0	2	0
10 nutmegs...	0	1	0
Carried forward	£205	16	7

	£	s.	d.
Brought forward	205	16	7
1 packet starch	0	3	0
1 oke twine	0	2	6
2 okes nails, at 10*d.*	0	1	8
1 box cigarette papers	0	8	0
Kitchen utensils	0	13	6
Empty bags	0	2	0
Packing	2	10	0
Total	£209	17	3

ADDITIONAL SUPPLIES.

	£	s.	d.
50 bottles 'Ráki, at 2*s.*	5	0	0
95 okes potatoes, at 5*d.*	1	19	7
16 lbs. tea, at 4*s.*	3	4	0
50 tins preserved meats, at 1*s.* 6*d.*	3	15	0
20 „ green peas, at 1*s.*	1	0	0
12 „ haricots verts, at 1*s.*	0	12	0
12 „ champignon, at 1*s.* 2*d.*	0	14	0
6 „ first size asparagus, at 4*s.*	1	4	0
10 „ butter (1 lb.), at 2*s.* 8*d.*	1	6	8
36 lbs. English cheese, at 1*s.* 6*d.*	2	14	0
60 okes maccaroni	3	0	0
126 „ onions, at 7*d.*	3	13	6
20 packets candles	1	0	0
50 boxes matches, at 1*s.* 2*d.* doz.	0	5	0
5 bars soap, at 1*s.* 6*d.*	0	7	6
12 bottles sauces, at 1*s.* 2*d.*	0	14	0
6 large bottles pepper, at 2*s.*	0	12	0
10 small packets salt, at 1*s.*	0	10	0
5 bottles lime-juice, at 2*s.* 6*d.*	0	12	6
108 okes hard biscuits, at 1*s.*	5	8	0
2½ „ snuff	2	10	0
16 lbs. ginger-root, at 1*s.* 6*d.*	1	4	0
2 doz. whisky, at 36*s.*	3	12	0
2 „ Martel's cognac	4	4	0
6 bottles absinthe, 2*s.* 6*d.*	0	15	0
Carried forward	£49	16	9

	£	s.	d.
Brought forward	49	16	9
5 bottles Oxley's essence of ginger, at 4s. ...	1	0	0
5 „ pyretic saline, at 3s. 6d.	0	17	6
3 boxes seidlitz powders, at 2s.	0	6	0
1 bottle aconite	0	2	6
4 iron tea and coffee kettles	1	14	0
2 empty tins for tea	0	3	0
Packing	1	10	0
Carts, 2s.; railway fare, 82s.	4	4	0
Total ...	£59	13	9

APPENDIX IV.

BOTANY AND LIST OF INSECTS.

SECTION I.

PROFESSOR D. OLIVER'S LIST OF DRIED PLANTS presented by Captain Burton to the Herbarium, Royal Gardens, Kew, September, 1878.

	Nu'man Isle.	Midian.		
		North.	Middle.	South.
Anastatica hierochuntina, L. *Kaff maryam* ...	—	1	—	—
Morettia parviflora, Boiss. Eaten by cattle. *Thagar; Gaf'aá*	—	—	1	1
Matthiola oxyceras, DC. *forma gracilis.* Animals eat. *Hazá; Muhawwil* ...	—	—	1	—
Malcolmia ægyptiaca, Spr. Animals eat. *Tarbeh*	—	1	—	—
Zilla myagroides, F. *Silla.* Camels eat ...	—	1	—	—
Biscutella Columnæ, Ten.	—	—	1	—
Diplotaxis Harra? *Hárrah.* Eaten by cattle	—	—	1	—
Diplotaxis acris, Boiss. (*Moricandia crassifolia*, Gay)	—	1	—	—
Sisymbrium erysimoides, Desf. *Salih.* Eaten by camels and sheep	—	1	1	1
Farsetia Burtonæ, Oliv. *sp. nov. Ghurayrá*	—	1	1	—
Schimpera arabica, H. and St.	—	1	—	—
Enarthrocarpus lyratus, F., vel E. strangulatus, Boiss	—	1	—	—
Capparis Sodada, Br. (*Sodada decidua*, Forsk.). *Tanzub.* Red berries eaten	—	—	—	1
Cleome chrysantha, Dcne. *Mashteh.* Pounded and drank for worms, etc.	—	—	—	1

	Nu'man Isle.	Midian. North.	Midian. Middle.	Midian. South.
Cleome arabica, L. *'Ubaysá.* Eaten by animals	—	—	—	1
Papaver Decaisnei, H. and St.	—	—	1	—
Ochradenus baccatus, Del. *Gurzi.* A large tree; eaten by cattle	—	1	—	1
Reseda (Caylusea) canescens, L. *Zunabán.* Eaten by cattle	—	1	1	—
Reseda, an R. stenostachya (?), Boiss. *Khizám.* Eaten by animals	—	1	—	—
Helianthemum Lippii, Pers. *Kazím.* Cattle eat	—	—	1	—
Silene villosa, Forsk. *'Abaysá.* Too much coated with sand to serve as food for animals	—	1	—	—
Gypsophila Rokejeka, Del.	—	—	1	—
Polycarpæa fragilis, Del. *Makr* ...	1	—	—	—
Portulaca oleracea, L.	—	—	—	1
Hibiscus micranthus, L. fil. *forma. Khusiyat Ráshid.* Eaten by animals	—	—	1	1
Abutilon fruticosum, G. and P. (*Sida denticulata*, Fres.).	—	—	—	1
Abutilon muticum, Don	—	—	—	1
Erodium laciniatum, Cav. *Garná.* Eaten by cattle	—	1	1	1
Monsonia nivea, Gay	—	1	—	—
Geranium mascatense, Boiss. *Hilúwá.* Eaten by man and beast	—	—	1	—
Erodium cicutarium, L.	—	1	—	—
Tribulus terrestris, L. *Katbeh*	—	1	1	1
Zygophyllum simplex, L.	—	—	1	—
Zygophyllum album, L. *Gallúm.* Camels eat	1	—	—	—
Zygophyllum coccineum, L. *forma* (*Z. propinquum*, Dcne.). *Murákká.* Animals eat	—	1	—	—
Fagonia cretica, L. var. (*F. glutinosa*, Del.). *Shikká* (North Midian); *Darmeh* (Nu'man)	1	1	—	—
Fagonia mollis, Del. *Warágá;* and young plant of same = *Zarag.* Animals eat	—	1	1	—
Fagonia Bruguieri, DC. *Jamdeh.* Animals eat	—	1	—	—
Dodonæa viscosa, L. var. (*D. arabica*, H. and St.). *Athab*	—	—	1	—
Rhus oxyacanthoides, Dum. *'Ar'ar* ...	—	—	1	—
Neurada procumbens, L. *Sa'adán.* Eaten by man and beast. Mountain region ...	—	1	—	1
Trianthema pentandra, L.	—	—	—	1

	Nu'man Isle.	Midian.		
		North.	Middle.	South.
Trianthema (?). (Imperfect specimen.) *Rumayh.* Eaten by sheep and cattle	—	—	—	1
Aizoon canariense, L. *Da'ā'ā.* Grain pounded and eaten	—	—	—	1
Gisekia pharnaceoides, L.	—	1	—	—
Cucumis prophetarum, L. Locality mislaid.				
Cotyledon umbilicus, L. *forma* ...	—	—	1	—
Pimpinella arabica, Boiss. *Rujaylet el-Ghurâb* (Little Crow's-foot). Sheep eat. Locality astray.				
Pimpinella (*Tragium palmetorum?* St. and H.). Very young	—	1	1	—
Ferula (? sp., leaf only). *Kalkh.* Animals eat. High up on Shárr.				
Grammosciadium scandicinum, Boiss. *sp. nov.*	—	—	1	1
Medicago laciniata, All.	—	—	1	—
Taverniera ægyptiaca, Boiss. (*ex descr.*). *Shibrig.* Eaten by animals	1	—	—	—
Indigofera spinosa, Forsk. *Shibrig.* Camels eat. Good fodder	—	—	—	1
Indigofera paucifolia, D.	—	1	—	—
Indigofera (stunted specimen, may be *I. paucifolia*). *'Afár.* Animals eat	—	1	—	—
Tephrosia Apollinea, DC. *Dalsam; Tâwîl.* Animals eat	—	1	1	1
Genista (Retama) monosperma, Del. ...	—	1	—	—
Lotononis Leobordea, Bth. *Hurbat.* Eaten by cattle	—	1	1	—
Trigonella stellata, Forsk. (*T. microcarpa*, Fres.)	—	1	1	—
Onobrychis (?), possibly O. Ptolemaica. (Barren specimen)	—	1	—	—
Astragalus sparsus (?), Dcne.	—	1	—	—
Astragalus Sieberi, DC. *Ghákeh.* Dry and pounded root mixed with clarified butter. Drunk as a restorative	—	1	—	1
Astragalus Forskâhlei, Boiss. *Kiddâd.* Camels eat	—	1	—	—
Cassia obovata, Coll. *Senna*	—	1	1	1
Iphiona scabra, DC. *Zafrah.* Camels eat	—	1	—	—
Pulicaria undulata, DC. *Rabul.* Fine perfume	—	1	—	—
Blumea Bovei, DC. (*B. abyssinica*, Sch.) ...	—	—	—	1

	Nu'man Isle.	Midian. North.	Midian. Middle.	Midian. South.
Ifloga spicata, Forsk. *Zenaymeh.* Animals eat	—	—	—	1
Asteriscus pygmæus, C. and Dur. ...	—	—	—	1
Anvillæa Garcini, DC. (*fide* Boissier). *Nukud.* Eaten by camels and sheep	—	—	1	—
Anthemis, an A. deserti (?), Boiss. *Gahwán.* Camels eat: also called *Gurrays*, pounded and eaten with dates	—	1	1	1
Matricaria (Chamæmelum) auriculata (Boiss.)	—	—	1	—
Senecio Decaisnei, DC. *Umm lewínayn* ...	—	—	1	1
Senecio coronopifolius, Desf.	—	1	1	—
Calendula ægyptiaca, Desf.	—	—	1	—
Calendula ægyptiaca (?)	—	1	—	—
Calendula, an var. ægyptiacæ (?)	—	—	—	1
Echinops spinosus, L. *Akhshír.* Eaten by camels, sheep, and asses	—	—	1	1
Zoegea purpurea, Fres. *Rubayyán.* Cattle eat	—	—	1	—
Centaurea sinaica, DC. *Yemrár.* Eaten by sheep, asses, etc.	—	1	—	1
Picridium tingitanum, Desf. *forma. Huwwá; Tíz el-Kalbeh; El-Haudán.* Eaten by man and animals	—	1	1	1
Urospermum picroides, Desf.	—	1	—	—
Microrhynchus nudicaulis, Less. *'Azíd* ...	1	—	1	1
Pterotheca bifida, F. and M.	—	1	1	—
Picris, conf. P. Saharæ, C. and K. ...	—	—	—	1
Picris cyanocarpa, Boiss.	—	—	1	—
Callipeltis cucullaria, Stev. *'Ikrish.* Cattle eat. North or Central Midian.				
Crucianella membranacea, Boiss. ...	—	—	1	—
Galium capillare, Dcne	—	—	1	—
Salvadora persica, L. *El-Arák* ...	—	1	—	1
Rhazya stricta, Dcne. *Harjal.* Eaten only by mules. Very fragrant	—	1	—	—
Dæmia cordata, R. Br.	—	—	1	—
Steinheilia radians, Dcne. *Faka'*	—	1	—	—
Convolvulus Hystrix, V. *Shibrím.* Root used as a purgative. Animals eat upper part of plant	—	—	—	1
Cuscuta, conf. C. brevistyla, A. Br.	—	—	1	—
Withania somnifera, Dun. *Shajarat el-Dib*	—	1	—	—
Lycium europæum, L. *'Aushaz.* Eaten by animals	—	—	1	1

	Nu'man Isle.	Midian. North.	Midian. Middle.	Midian. South.
Solanum coagulans (?), Forsk. var. (A small fragment only)	—	—	I	—
Hyoscyamus pusillus, L. *Saykrân*	—	I	I	—
Heliotropium arbainense, Fres. *Rahhâb.* Cattle eat	—	I	I	—
Trichodesma africanum, R. Br. *Ahmîm.* Camels and other animals eat	—	—	I	—
Echium longifolium (?), Del. *Kahlâ.* Animals eat	—	—	I	—
Anchusa Milleri, W.	—	—	I	—
Anchusa Milleri (?) } young specimens	—	—	I	—
Anchusa Milleri (?) } young specimens	—	I	—	—
Gastrocotyle (Anchusa hispida, Forsk.). *Karîr.* Camels eat	—	—	—	I
Arnebia hispidissima, A. DC. *Faynâ.* Animals eat	—	I	I	—
Lithospermum callosum, V.	—	I	—	—
Lindenbergia sinaica, Bth. *Mallîh.* Cattle eat	—	—	—	I
Verbascum (in bud), an V. sinaiticum (?), Bth.	—	—	—	I
Verbascum, sp. nov. *Sammâ*	—	—	I	—
Herpestis Monniera, Kth. *Nafal.* Animals eat	—	I	—	—
Veronica Anagallis, L.	—	—	—	I
Linaria ægyptiaca, Dum.	—	I	—	—
Linaria macilenta, Dcne. *Zuraymat el-Himar.* Eaten by animals	—	—	I	—
Linaria (§ Elatinoides), sp. imperfect ...	—	—	I	—
Linaria simplex (?), DC.	—	I	I	—
Linaria Hælava, Chav. (*fide* Boissier) ...	—	I	—	—
Blepharis edulis, Pers. (*Acanthodium spicatum*, Del.). *Shauk el-Jemel.* Camels fond of it	—	I	—	I
Lavandula coronopifolia, Poir. *Zayteh.* All animals eat	—	I	I	—
Mentha lavandulacea, W. *Habag.* Animals do not eat. Pounded and mixed with fresh dates, "good for stomach"	—	I	—	—
Salvia ægyptiaca, L.	—	I	—	—
Salvia deserti, Dcne.	—	—	I	—
Salvia, an S. deserti (?). *Ja'adeh.* Pounded in water and snuffed up nose	—	—	I	—
Otostegia, var. O. scariosæ (?), Bth. (vel O. repanda, Bth.) *Ghassch.* Sheep eat ...	—	—	I	I

	Nu'man Isle.	Midian.		
		North.	Middle.	South.
Statice axillaris, Forsk. *Annúm.* Camels eat	—	1	—	1
Plantago Psyllium, L. *Nezi'ah.* Animals eat	—	1	1	—
Plantago amplexicaulis, Cav. *Yanameh.* Animals eat	—	—	1	—
Aerwa javanica, Jass. *Rayl.* Cattle eat ...	—	1	—	1
Chenopodium murale, L. ?	—	1	—	—
Chenopodium murale, L. ? (Small seedlings.) *Nafal.* Cattle eat	—	—	—	1
Atriplex dimorphostegia ? K. and K. *Roghol.* Animals eat	—	1	—	—
Echinopsilon lanatum, Moq. *Garay'd.* ...	—	1	—	1
Suæda sp. (?). (Small fragment.) ...	—	1	—	—
Suæda sp. (?). (Barren fragments, insect punctured ?) *'Aslá.* Forage plant	1	—	1	—
Suæda monoica ? Forsk. *Zuraygá.* Forage plant	1	—	—	—
Salsola (?), cf. S. longifolia, F. *Hamz.* Camels eat	1	—	—	—
Caroxylon (?) (barren specimen), near C. fœtidum. *Akahrít.* Animals eat ...	1	—	—	—
Rumex vesicarius, L. (*R. roseus*, Del.). *Hammáz.* Animals eat	—	—	1	—
Emex spinosus, Camp.	—	1	—	—
Crozophora tinctoria, Juss. *Hinaydieh.* Not eaten	—	—	—	1
Euphorbia cornuta, Pers. *'Atir* ...	—	1	—	—
Euphorbia scordifolia, Jacq. *Gharghír.* Animals eat	—	1	—	—
Euphorbia (Anisophyllum) granulata, Schf. *Rugaygeh.* Animals eat	—	—	—	1
Euphorbia (Anisophyllum) granulata, *forma* (?). *Lubayneh.* Cattle eat	—	—	—	1
Juniperus phœnicea, L. At four thousand feet on Sharr. Trunk thicker than a man's body. *Halíbeh*	—	—	1	—
Parietaria alsinifolia, Del.	—	—	1	—
Forskâhlea tenacissima, L. *Lissák.* Animals eat	—	—	1	—
Asphodelus fistulosus, L. (var. tenuifolius, Bker.). *Bórak.* Only eaten by animals when very hungry. Asses eat	—	1	1	—
Bellevalia flexuosa, Boiss.	—	1	—	—

	Nu'man Isle.	Midian. North.	Midian. Middle.	Midian. South.
Dipcadi erythræum, Webb	—	1	—	—
Gagea reticulata, R. and S.	—	1	—	—
Juncus maritimus, L.	—	—	—	1
Scirpus Holoschænus, L. *Namas.* Sent to Egypt for mats	—	—	—	1
Cyperus conglomeratus, Rottb. (Young specimens)	—	1	—	—
Chloris villosa, Pers.	—	—	1	—
Æluropus repens	—	1	—	—
Tricholæna micrantha, Schrad. *Ghaswar.* Eaten by camels, etc.	—	—	1	1
Panicum turgidum, Forsk. *Zarram.* Good fodder	—	1	—	1
Arundo Donax, L. *Kasbá*	—	1	—	—
Polypogon monspeliensis, Desf. *Khafúr.* Sheep eat	—	—	—	1
Stipa tortilis, Desf. *Pehmeh.* Animals eat ...	—	1	1	1
Aristida cærulescens, Desf. *Shárib el-Kalb.* Animals eat	—	1	1	—
Hordeum maritimum, L.	—	1	—	—
Pappophorum, an P. phleoides (?), R. and S. *Nejil.* Sheep eat	—	—	—	1
Barren specimen. Indeterminable. Grass	—	1	—	—
Grass (?). Root and leaves. *Hashmil.* Animals eat	1	—	—	—
Typha (?). Root and fragments of leaves. *Birdi*	—	—	—	1
Grass. Fragmentary. *Za'eh.* Cattle eat ...	—	—	—	1
Chara fœtida, Braun. *'Ishnik* ...	—	1	—	—
A barren fragment of undershrub, with opposite fleshy leaves with recurved margins. *Ajid.* Eaten by animals. Doubtful	1	—	—	—

D. OLIVER.

Section II.

The spirit-specimens submitted to Mr. William Carruthers, of the British Museum, are described by him as follows :—

1. *Phallus impudicus*, Linn. (in Arab. Faswat el-'Ajúz). The common "stinkhorn," extremely common in some districts of England, and obtruding on the notice of every one from its detestable odour. It is widely distributed over America and Africa, as well as Europe, but I find no record of its occurring in Asia.

2. *Tulostoma mammosum*, Fr. Also British, but not so common. Widely distributed.

3. *Phelipæa lutea*, Desf. A dark, fleshy broom-rape, with scaly leaves. We have one species of the same genus in England. They are parasitic on the roots of plants; and the Midianite species, which is found in North Africa, Egypt, and Arabia, grows on the roots of a Chenopodium.

4. *Cynomorium coccineum*, Mich. A fleshy, leafless plant, also a root-parasite. It was called by old writers *Fungus Melitensis*, and was of much repute in medicine. It is known from the Himalayas to the Canary Islands, and is said by Webb, in his history of the Canaries, to be eaten in the Island of Lancerotte.

5. *Dœmia cordata*, R. Br. A spiny shrub, with roundish leaves and small sharp-pointed fruit, found in Egypt and Arabia.

6. *Capparis galeata*, Fres., with large fruit, long and pear-shaped. This caper is well known; from Syria and Egypt.

(Signed) W. CARRUTHERS.

INSECTS COLLECTED IN MIDIAN BY CAPTAIN BURTON.

(*Identified by Mr. Frederick Smith, of the British Museum.*)

COLEOPTERA.

Geodephaga.

1. Anthia 12 guttata.

Melolonthidæ.

2. Schizonycha reflexa.
3. Pachydema.

Dynastidæ.

4. Heteronychus.

Curculionidæ.

5. Cleonus arabs.

Heteromera.

6. Mesostena near punctipennis.
7. Adesmia.
8. Akis Goryi?
9. Mylabris.

Hemiptera.

10. Nepa rubra.

Mantidæ.

11. Eremiaphila arenaria.
12. Blepharis mendica.

Orthoptera.

13. Acocera.
14. Acridium peregrinum.
15. Pœcilocera bufonia.

Scorpionidea.

16. Androctonus funestus.
17. „ leptochelys.
18. „ quinquestriatus.

Arachnida.

19. Galeodes arabs } in spirit.
20. Clubiona Listeri }

(Signed) FRED^K. SMITH.

APPENDIX V.

METEOROLOGICAL JOURNAL

(*December* 19, 1877, to *April* 17, 1878).

METEOROLOGICAL NOTES ON TRAVELLING IN MIDIAN.

Midian follows the rule of Syria—travel in the spring. The best time on the seaboard is during the months of March, April, and May. In the mountains and the Hismá plateau, April, May, and June are the most favourable. In Syria (Damascus) the autumn is dangerous: the finest travelling weather is in March to May. The second best season is between October and December.

January and February are cold; the latter also (sometimes) rainy.

March is stormy at first (*El-'Uwweh*), but afterwards gets warmer (*El-Ni'ám*). Dews now begin, and last some three months: they wet everything like a sharp shower, and make the air feel soppy.

In July the first dates come in. Fevers are prevalent during this month, and also during August and September.

October is a month of heat and drought.

In November the first cold occurs.

December is the coldest month.

NOTES ON TRAVELLING IN LOWER EGYPT.

September is very bad—all should escape who can. Fruits everywhere; sun hot; air damp with irrigation water, white fogs, and other horrors.

October is a good month, the weather being neither too hot nor too cold.

November is the month of the "second water" irrigation about Cairo.

December is pleasant.

January is cold and sometimes wet.

February is stormy, and even foggy with sand-mist.

March is windy, but on the whole a good month, except for *Khamsín*, which begins about March 20th.

April begins to feel warm (April 29, 1878, *Shamm el-Nasím*).

The winter presents a marvellous contrast to that of England, which can often show one hour and five minutes' sunlight in the twenty-four, or 2·8 per cent. of its possible duration.

The Tides

in El-'Akabah are like Suez: first of month, flood, 6—12 a.m. and p.m.; ebb, the rest. But at Suez the tides rise one metre, and at times two metres; at El-'Akabah (February 7), one foot.

For the instruments *not* used in this Expedition, see Chap. I. p. 11.

The *baromètre aneroïd* sold by M. Ebner was partially repaired by M. Lacaze, and served for Mr. David Duguid's observations.

My pocket set by Casella (maker to the Admiralty and Ordnance) consisted of—

One watch aneroid (compensated, 1182).

Two sets wet and dry bulb thermometers (one broken).

One set maxima and minima thermometers, Nos. 12,877 and 12,906.

Two pocket hygrometers not numbered.

Observations taken during First March between December 19, 1877, and February 18, 1878

December 19, 1877, compared ship's (*Mukhbir*) mercurial barometer, 758 millimètres, with my aneroid by Casella (29·85) = 765 millimètres; difference in ship's, + 007 millimètre.

January 31, 1878, returned on board *Mukhbir* at Makná. Ship's mercurial barometer, 773 millimètres; my aneroid by Casella, 764 millimétres; difference in ship's, + 009 millimètre.

Date.	Time.	Aneroid. Inches.	Aneroid. Milli.	Ther.	Dry Bulb.	Wet Bulb.	Hygr.	Remarks.
Dec. 19.	7 a.m.	29·85	765	76°	—	—	58°	On deck of gunboat *Mukhbir*, at Sharm Yáhárr, steaming to El-Muwaylah. Morning ugly. Strong land-breeze, turned to *Asyab* ("south-easter"). Waves rising. Dark-blue clouds to windward.
	Noon.	29·80	757	77°	—	—	54°	In big tent on shore, open east and west. Wind high. Everything feels damp; looks gloomy; mountains almost hidden by clouds. Landscape that of Europe. No sun nor sunshine all day.
	3 p.m.	29·09	—	86°	—	—	51°	In my small tent. Clearing to windward (north). Wind veering to north. Moon nearly full. High fleecy clouds. Sea high. No sun all day.
	Asyab (the wet wind) generally lasts two or three days; veers round by west to north. Much rain has already fallen (Arab lies). Land green (all brown); grass plentiful (not a blade to be seen). Rains here December 15th to February 15th; downfall one hour to four hours, then clears. On December 8th, violent rain for one hour; filled all the torrents (*Sayl*).							
Dec. 20.	7 a.m.	29·80	758	63°	—	—	40°	In small tent open to east. Morning clear. Few fleecy clouds: cool and bright. "Misri" from north-west; cold and rain.
	3 p.m.	29·92	759	78°	—	—	32°	Hot in tents, cool in breeze. "Misri" high and strong sea. At 1.10 p.m. heavy clouds; expected rain—few heavy drops.
	At El-Muwaylah and Ras Wady Tiryam.							
Dec. 21.	6.35 a.m.	30·02	763	71°	—	—	35°	Inside tent. Full moon and clear. Dawn, 6 a.m.; night, 6.30. Speckled clouds.
	Noon.	30·48	764	76°	—	—	48°	Under umbrella. Air clear. Mottled clouds on mountains. Sea horizon. Low white bank of clouds.
	3 p.m.	30·05	763	77°	—	—	39°	"Misri." High cirri from west. Big black cloud over sea. Suspected rain: Arabs said no. Cloud dispersed.

Date.	Time.	Aneroid. Inches.	Aneroid. Milli.	Ther.	Dry Bulb.	Wet Bulb.	Hygr.	Remarks.
				At Ras Wady Tiryam.				
Dec. 22.	7 a.m.	30·01	760	57°	—	—	32°	Cold night. Clear morning. Cold sunrise. Dry north-wester. Instruments on paper, resting on the sand. Very dry.
	Noon.	30·14	—	82°	—	—	22°	Very dry. Straight streaks of cirri everywhere.
	4 p.m.	30·00	763	72°	—	—	17°	At Wady Sharmá, on sand protected from west wind Bright moon, showed halo.
	Kayhak 14 begins the Coptic winter, properly speaking evening of 13th; after sunset 1 hour 51 minutes. Sea-breeze and land-winds regular to-day and throughout the month.							
				At Wady Sharmá.				
Dec. 23.	7 a.m.	29·90	760	58°	—	—	19°	Instruments on box standing on sand. Moon with halo at night. Red sunrise, grey clouds. Mountains blue-grey, brightly defined. Before dawn moon two halos, large and small. Fleecy clouds. Nine a.m. clear, sun hot.
	2.30 p.m.	29·15	740	78°	—	—	25°	Under rock in upper Wady Sharmá. Streaky cirri. Sun hot; air cool. Little sea-breeze, kept off by hills.
	Arrived at the "White Mountain," and stayed there a week.							
	4 p.m.	29·12	740	75°	—	—	28°	At Jebel el-Abyaz, on box behind tent sheltered from wind. Air quite still; streaky cirri. Camp Jebel el-Abyaz, say, 800 feet above sea. Felt very dry.
				At Jebel el-Abyaz.				
Dec. 24	7 a.m.	29·10	738	61°	—	—	29°	In mess tent on mess table. Cold. Mottled clouds east and zenith. Grey bank to sea reddened by sunrise, like storm clouds. Rain here from *Azyab* ("south-east"). Sunrise at Cairo, 6.55 a.m.
	Noon.	29·00	737	64°	63°	55°	33°	Suspended instruments. Grey day; cold breeze from east. Cold comes only from wind; when no breeze, very mild. Getting greyer and colder. Very like rain—heavy clouds.
	3.10 p.m.	29·00	737	64°	64°	52°	28°	Wind west, cold and raw. Air grey and cold. Evening cold; clouds dispersed, sun came out. Wind to west, inclining to north.
	Small thermometer shows higher than Casella's because in brass case; not so well exposed to air.							
Dec. 25.	7 a.m.	29·10	739	50°	50°	45°	29°	Morning cool and clear.
	Noon.	29·20	—	72°	68°	55°	21°	Very clear, still, and hot. Slight breeze from sea (west). Sun strong. Swarms of flies. Dry bulb in sun, 73°; wet, 60°.
	3 p.m.	29·16	741	72°	69°	54°	15°	Cool and gentle breeze from sea, dispersing the swarms of flies. At times "sand-devil" from north-west.
	All this day's observations taken on writing table in large tent. Night cold: cold severest after two a.m. and before sunrise. Sky at night perfectly clear. Wind from north turning to east, a *Barri* ("land-breeze"). Height of Jebel el-Abyaz above tents, by aneroid = 350 feet (29·20 − 28·85 = 0·35).							

Date.	Time.	Aneroid. Inches.	Milli.	Ther.	Dry Bulb.	Wet Bulb.	Hygr.	Remarks.
Dec. 26.	7.15 a.m.	29·21	743	48°	46°	43°	22°	In tent. Sky perfectly clear.
	Noon.	29·26	—	76°	77°	55°	6°	Sun very hot. Air quite still. Fleecy clouds from west over the sun.
	4.45 p.m.	29·23	743	73°	69°	55°	8°	Sun cooler. Air perfectly clear.
Dec. 27.	7 a.m.	29·16	740	50°	49°	43° 5′	3°	In tent. Morning cold and clear: few flecks of cloud to east. Air feels intensely dry.
	12.30 p.m.	29·23	743	77°	74°	58°	9°	Fine cirri high up. Sky blue. Sun veiled at times. Very little wind, a breath from north.
	3.20 p.m.	59·16	742	80°	77°	56°	6°	Sky with filmy white clouds, thicker at west. Sun hidden; very hot at noon (rain-sun?). Not a breath of air. Sense of intense dryness. Ink evaporates at once. Cool breeze started up shortly after 3.30 p.m. from west, then clouds thickened. Thermometer fell 4°.
	Cool evening; quite clear. Fevers and feverish colds begin to show themselves in camp. Minimum thermometer during night—No. 1, 45°; No. 2, 46°; French, 15½° (Centigrade).							
Dec. 28	7 a.m.	29·10	739	55°	53°	46°	10°	In tent. Still. Neither warm no cold. Mottled clouds.
	Noon.	29·13	740	78°	72°	58°	4°	Clouds thin. Sun very hot (rain-sun?). Light breeze from north-west.
	3 p.m.	29·10	739	79°	72°	58°	—	Feels intensely dry. Hot, close. Heavy clouds, and purple to west. Gusts from west.
	No wind. Morning and evening very mild. At eight p.m. dark cloud moving from south-west to mountains. Drops of rain; then stars. Minimum thermometers during night, both 48°. None of the maximum will act.							
Dec. 29.	7 a.m.	29·10	738	58°	58°	54°	9°	In tent. Cool, clear. Blue-pink in west. Light sea-breezes from west. Must be awfully hot in summer. In closed tent at eleven a.m., 92°.
	Noon.	29·13	—	77°	75°	60°	10°	Nice breeze from sea (west), bending to north.
	4 p.m.	29·00	739	82°	79°	59°	5°	Warm and quite still.
	Mean of nineteen aneroid observations at Jebel el-Abyaz = 29·13.							
	MARCH FROM JEBEL EL-ABYAZ TO WADY SHARMÁ.							
Dec. 30.	7 a.m.	29·10	739	56°	—	—	7°	Clear, still. No speck of cloud. Moon *Náim* (sleeping = ☾).
	5 p.m.	29·88	758	66°	—	—	8°	Air quite clear. Camped at Sharmá. Change to shore pleasant and soft.
	Noon on journey; sun very hot. Evening still. Violent weather at night; cold and comfortless. Abated somewhat after sunrise.							
	AT SHARMÁ, IN BIG TENT OPEN NORTH AND SOUTH.							
Dec. 31.	7 a.m.	29·88	758	59°	—	—	7°	Wind cold and dusty. Sky perfectly clear. A few light mist-clouds on mountain-wall.
	Noon.	29·94	760	75°	73°	58°	6°	Wind still. Sun much warmer.
	3 p.m.	29·90	—	74°	71°	58°	3°	Wind cool; some dust.
	Clouds about sunset sailing out of Suez Gulf, forming archipelago of sky islets. Dark bank to south. Minimum thermometer at night = 42°.							

Date.	Time.	Aneroid. Inches.	Aneroid. Milli.	Ther.	Dry Bulb.	Wet Bulb.	Hygr.	Remarks.
	AT SHARMÁ, IN BIG TENT OPEN NORTH AND SOUTH (about 100 feet above sea-level).							
Jan. 1.	7 a.m.	29·90	759	53°	50°	45°	10°	Clear, fine, quite still. Nice breeze began about nine a.m.
	Noon.	29·97	—	71°	69°	57°	4°	Cold. North wind high. Light clouds to west; the rest clear.
	3 p.m.	29·94	760	73°	72°	61°	4°	Clouds to west from Suez sea.
	High wind fell before midnight. Cold — sat in tent. Flies troublesome everywhere. Minimum at night, 42° – 43°.							
	AT WADY SHARMÁ, IN BIG TENT.							
Jan 2.	7 a.m.	29·98	761	53°	—	—	10°	
	3 p.m.	30·00	762	76°	72°	58°	3°	Cool breeze from north. No signs of clouds. Sun hot and air cool.
	Evening no wind, no clouds. At night high cold wind from east, seems to pierce clothes. Lasted till morning and sun well up. Minimum thermometer, No. 1 = 45°; No. 2 = 46°.							
Jan. 3.	7 a.m.	29·92°	760	58°	57°	47°	3°	Dawn comfortless. Cold. Fire in tent. Sand blowing. Air highly electrical.
	Noon.	29·90	762	77°	76°	61°	2°	Wind still. Hot sun.
	3 p.m.	29·91	759	76°	74°	58°	4°	Hot sun. Gentle breeze. Warm in tent.
	Night very cold. Minimum thermometers, No. 1 = 40°; No. 2 = 41°.							
Jan. 4.	,,	29·83	—	52°	50°	—	5°	
	Noon.	29·93	760	81°	80°	60°	3°	Decidedly hot. No breeze.
	3 p.m.	29·90	—	78°	75°	63°	0°	Very hot and still.
	In evening few fleecy clouds to south-west. Appearance of *Asyab*. Minimum thermometers at night, No. 1 = 36°; No. 2 = 38°.							
	AT WADY SHARMÁ.							
Jan. 5.	7 a.m.	29·90	—	48°	45°	43°	6°	Pink clouds south-west and south-east. Cirri everywhere.
	Noon.	29·87	761	79°	79°	67°	3°	Hot and still. Clear; few cirri.
	3 p.m.	29·96	760	74°	71°	60°	0°	Cool wind. Cold in shade. Cirri to south, at times over the sun.
	Very cold at night. Saw new moon; set in fire. Planets veiled in mist. Moon *Kâim* (points upwards = ☽).							
Jan. 6.	7.20 a.m.	29·94	760	53°	51°	46°	8°	Still, clear. Light breeze about 10.30 a.m.
	Noon.	29·80	761	82°	—	—	4°	
	4 p.m.	29·96	761	76°	—	—	3°	Clear and hot. Sunset, red cirri. Water very cold. Moon clear.
Jan. 7.	,,	29·98	758	52°	—	—	18°	At Sharmá. Cool and raw. Few clouds to south and south-west.
	Noon.	30·08	764	78°	—	—	26°	At 'Aynúnah, in big tent. Fresh wind from north. Air much damper; more pleasant.
	Strong wind at night from north.							
	AT 'AYNÚNAH.							
Jan. 8.	7 a.m.	30·11	763	55°	—	—	22°	Morning still—windless. Breath from east. Warm and pleasant.
	Noon.	30·02	767	77°	74°	61°	13°	Quite clear and dry. Gusts of wind. Flies very bad, even in the waste.
	3 p.m.	30·15	767	77°	76°	63°	7°	
	Cold high wind at night.							

Date.	Time.	Anerold. Inches.	Anerold. Milli.	Ther.	Dry Bulb.	Wet Bulb.	Hygr.	Remarks.
				LEFT 'AYNÚNAH.				
Jan. 9.	7 a.m.	30·04	—	63°	—	—	10°	Outside tent. Light clouds everywhere at dawn. Morning warm and close.
	Noon.	29·91	759	80°	—	—	48°	At El-'Usaylah. Sky covered with clouds. Sun coming out.
	4 p.m.	29·87	758	53°	—	—	23°	In tent at El-'Usaylah. No wind.
	Cool pleasant night. Rain in Mount Sinai (?).							
Jan. 10.	6.45 a.m.	29·85	—	56°	—	—	15°	Observations in open. Cold north wind. Clear and cirri.
	3 p.m.	29·30	745	77°	—	—	1°	At Maghâir Shu'ayb, under a tree.
	Night cold. High wind; shook the tents.							
				AT MAGHÁIR SHU'AYB.				
Jan. 11.	7 a.m.	29·37	747	60°	—	—	20°	In open, on box.
	Noon.	29·40	748	82°	—	—	8°	In tent.
	3 p.m.	29·38	747	84°	—	—	−4°	Still. Air hot.
	As a rule, at Maghâir Shu'ayb we had land-breezes; cold from north and east. Sea-breezes during day, after noon.							
Jan. 12.	7 a.m.	29·35	746	59°	—	—	3°	In tent. Cool. Cirri. At two a.m. cool fresh wind from north.
	Noon.	29·46	747	83°	—	—	−5°	In tent. Hot sun. Light clouds.
	3 p.m.	29·30	746	83°	81°	64°	−9°	In tent. No sun, no wind. Thin clouds.
	Night warm; wind towards morning. Mosquitoes in tamarisks of Wady. Minimum thermometer, 52°.							
Jan. 13.	7 a.m.	29·38	745	65°	—	—	−4°	Outside tent, on box. Cloudy; little wind. Felt warm. Sun came out strong at ten a.m.
	Noon.	29·27	744	87°	87°	67°	−9°	In big tent. Heat like summer. Flies troublesome, travel on our backs.
	3 p.m.	29·20	743	85°	85°	65°	−15°	Very hot. Thin clouds. Sea-breeze.
	Very hot and sultry weather: Arabs say portends rain. Wind (generally) from north in morning; afternoon from sea.							
Jan. 14.	7 a.m.	29,01	740	63°	63°	55°	0°	In tent. Land-breeze set in. Expected heavy rain, and pitched camp higher up.
	2.30 p.m.	29·15	—	87½°	79°	68°	0°	Taken by Mr. Clarke.
	Rain began 2.30 a.m. (Jan. 15), small drops, then heavy, lull, and again heavy; ended about 4.30 a.m. A little wind from south-west rose after rain. The last rain was on December 7—10, 1877; violent storms accompanied it.							
Jan. 15.	,,	29·00	—	71½	70°	66°	30°	By Mr. Clarke at Maghâir Shu'ayb. Sky all covered; little clear to west. Mist all over north. Things feel damp.
	Noon.	29·06	737	76°	73°	65°	30°	All cloudy. After rain, sultry heat of noon quite disappeared.
	3 p.m.	29·06	738	75°	73°	62°	25°	Still cloudy. Cool.
	Cold nights and mornings.							
Jan. 16.	7 a.m.	29·20	—	48°	45°	42°	18°	No rain. Cold. Little wind. Cloudy. No wind.
	Noon.	29·05	—	69°	65°	54°	3°	Sun hot. Cool breeze from north as usual. No clouds.
	3 p.m.	29·25	—	69°	65°	52°	12°	
	Night fine and clear. Stars and moon very bright.							

Date.	Time.	Aneroid. Inches.	Aneroid. Milli.	Ther.	Dry Bulb.	Wet Bulb.	Hygr.	Remarks.
Jan. 17.	7 a.m.	29·30	—	42°	42°	39°	17°	Clear morning. Very cold. Land breeze.
	Noon.	29·36	745	69°	66°	54°	18°	Fine stiff breeze from north-east.
	3 p.m.	29·34	745	73°	70°	59°	16°	Fine breeze falling.
	Fine clear night, moon nearly full. No clouds. Not cold. Cool at night and towards morning. Wind rose about four a.m.							
Jan. 18.	7.30 a.m.	29·28	745	55°	55°	50°	26°	In tent. Cool, clear. Gentle land-wind.
	Noon.	29·30	—	79°	79°	63°	16°	Same weather.
	3 p.m.	29·25	—	81°	79°	62°	8°	Night cool. Hardly any wind.
Jan. 19.	7 a.m.	29·15	—	53°	52°	45°	16°	In tent. Cold wind from north.
	Noon.	29·17	—	81°	79°	63°	9°	Sun hot. Cool breeze from north. Sky clear.
	3 p.m.	29·15	—	80°	77°	60°	5°	
	Remarkably warm pleasant night.							
Jan. 20.	7 a.m.	29·05	—	50°	48°	45°	19°	In tent. No wind. Air sharp.
	Noon.	29·10	—	79°	75°	63°	12°	Light wind (south-west). Sun hot. Sky clear.
	3 p.m.	29·10	—	73°	73°	60°	8°	Cool and pleasant.
	Curious moonrise. Thin clouds like volcanic smoke, separated into cirri like sheep-skin: all said sign of heat. Night still and warm. Few stratified clouds to west.							
Jan. 21.	8 a.m.	29·13	740	56°	54°	50°	20°	In tent. Cold raw wind (*El-Ayli*) from north-east. High clouds. Worse near Gulf.
	Noon.	29·20	743	68°	66°	55°	16°	High cold wind, continuous. Bright sun. Sky intensely blue and clear.
	4.15 p.m.	29·22	744	66°	65°	53°	8°	Cool. High wind.
	Strong wind at night; fell about midnight; gusts at times. Very cold. Bad weather at Sharm Yáhárr. *Fortuna* ("strong wind") began January 21st, ended January 23rd: the next gale was on night of January 28th. As a rule, the people say, black clouds show that the wind will increase; light clouds the contrary.							
Jan. 22.	7 a.m.	29·32	745	50°	49°	45°	15°	Cold and cloudy. *El-Ayli* continues.
	Noon.	29·36	748	66°	62°	52°	11°	High cold north-easter rose about 11.30. Sun warm. Air cold.
	Heavy purple clouds to north and west. Night still; occasional gusts. Eight p.m. quite still. *Mukhbir* delayed by bad weather.							
Jan. 23.	7.20 am.	29·39	748	50°	50°	45°	19°	Gusts and calm. Nimbi to west. High north wind set in.
	Noon.	29·40	747	66°	64°	54°	14°	Cold in shade, hot in sun. High wind.
	4 p.m.	—	—	66°	65°	52°	9°	Wind still high. Dust.
	Night alternately gusty and still. Warm. *Mukhbir* steamed back to her anchorage, Sharm Yáhárr.							
Jan. 24.	7 a.m.	29·29	745	55°	52°	47°	15°	Gentle breeze from north. No clouds —sign of no wind.
	1.30 p.m.	—	—	83°	78°	68°	10°	The normal hot, windless, cloudless day.
	3 p.m.	—	—	78°	74°	62°	7°	Pleasant sea-breeze. Sun hot; air coolish.
	Night warm and pleasant.							

Date.	Time.	Aneroid. Inches.	Milli.	Ther.	Dry Bulb.	Wet Bulb.	Hygr.	Remarks.
				MAGHÁIR SHU'AYB TO MAKNÁ (March).				
Jan. 25.	7 a.m.	29·30	—	61°	—	—	15°	On box. Fine, and perfectly clear.
	Noon.	29·45	—	78°	—	—	—	On road to Wady Makná, riding mule. Sea-breeze about noon, strong. Shortly after noon heavy clouds (from north and west) hid the sun.
	3 p.m.	30·06	—	71°	—	—	23°	Arrived at Makná, on box.
	Warm pleasant night. Appearance of rain. Wind from north. Moon clouded.							
				AT MAKNÁ.				
	Land and sea breezes regular. Morning and evening cool. Noon hot. Evaporation immense. Healthy near shore; feverish up the valley. Damp air from neighbourhood of Mount Sinai.							
Jan. 26.	7 a.m.	30·02	—	68°	—	—	21°	Cloudy. Heavy white waves on water. Wind west; dangerous for ships.
	12.30 p.m.	30·07	—	80°	77°	62°	21°	Sun hot; sky clear. Light fleecy clouds on Sinai.
	3.30 p.m.	30·04	743	82°	80°	70°	18°	Air and sun hot. Clear. Sea-breeze. No gale.
	Rain probably during the day in Sinai. *Muttali'*, or "fort," of Makná showed aneroid 760 (29).							
Jan. 27.	7 a.m.	30·02	—	60°	59°	55°	35°	In tent. Fine, clear; nice land-breeze. Rush of wind at two a.m. Wind at four a.m. Loud noise of reef.
	1.30 p.m.	30·04	—	80°	76°	68°	28°	In big tent, opening to south. Quite clear and bright. No clouds. Slight sea-breeze.
	3 p.m.	30·02	—	80°	79°	70°	26°	Hot and still.
	Night glorious. No wind. Only sigh and sound of reef.							
Jan. 28.	7 a.m.	29·98	—	58°	58°	53°	30°	Perfectly still and clear. Light land-breeze.
	12.45 p.m.	30·00	—	80°	78°	66°	22°	Weather breaking. Clouds forming everywhere. High horizontal cirri. North wind, whistling over country.
	3 p.m.	29·98	—	80°	79°	67°	20°	Packed up wet and dry bulbs.
	At sunset high streaky cirri of red colour: all said wind. Same as at Maghâir Shu'ayb (January 21–23). At eleven p.m. *El-Ayli* (north wind from 'Akabat-Aylah?) came down upon us with a rush. Gravel like drops of rain. Tents at once on the ground. Sky still clear—stars shining.							
Jan. 29.	7.15 a.m.	30·02	—	62°	—	—	19°	In tent-hut. Wind violent. Cold and raw between moonrise and sunrise.
	Noon.	30·04	—	81°	—	—	13°	In tent-hut. Wind (*El-Ayli*) gusty and violent. Sky quite clear.
	They say this gale denotes end of *Zamhartr* ("great cold"). Wind fell about three p.m. Mild at sunset. Wind then increased, and became very violent at night (10–11 p.m.); seems to beat down from above. Summit of quartz-hills, 2 obs. = 29·40.							
Jan. 30.	7 a.m.	30·06	—	62°	—	—	19°	In tent-hut. Mountains perfectly clear. Fleecy clouds to north and south, sailing from west to east.
	3 p.m.	30·06	—	72°	—	—	15°	Clear and fine. Wind falling.
	Wind fell during afternoon and evening, but rose again at night; was at its worst about eleven p.m.							

Date.	Time.	Aneroid. Inches.	Aneroid. Milli.	Ther.	Dry Bulb.	Wet Bulb.	Hygr.	Remarks.
Jan. 31.	7 a.m.	30·06	—	67°	—	—	22°	In tent-hut. Wind worse; signs of blowing everywhere. Light clouds north and south. Mottled clouds (cirri, mackerel-back). Gusts violent after sunrise.
	Noon.	30·08	—	73°	—	—	19°	In cabin on board *Mukkbir*. Wind violent. Sky clear. White clouds, as yet wind increasing. Sand and dust, but mountains clear.
	3 p.m.	30·09	—	78°	—	—	22°	On board *Mukkbir*. Wind violent. Sky covered with grey clouds.
	At sunset, gleams to west and round horizon; heavy to north. Hoped for rain, but none came. Fires alight all night. Very bad night; perhaps the worst yet seen. Chain dragging. At nine p.m. sky clear, but wind worse.							
	AT MAKNÁ, ON BOARD "MUKHBIR."							
Feb. 1.	7 a.m.	30·08	—	70°	—	—	21°	Wind worse than ever. Dark cirri to south. Mountains clear on all sides.
	Noon.	30·06	—	74°	70°	63°	21°	Wind very bad, turning to east (?). Cirri everywhere: to west formed ascending rays like sun, extending to zenith; to east were crosses and lozenges.
	3 p.m.	30·04	—	—	70°	65°	—	Wind still bad. White clouds have thickened to south, and thinned to north. Bases of mountains blurred (by dust?); summits clear.
	At sunset wind lighter. Dark clouds to south, going westward from Suez. Cirri overhead, presently disappeared; also about the horizon. At night fine zodiacal light. Wind increased. Observations in main cabin throughout voyage.							
Feb. 2.	7 a.m.	30·00	—	69°	70°	65°	22°	Perfectly clear. Wind worse.
	Noon.	30·00	—	78°	—	—	21°	Clear sky; only cloud, thin white strata to north.
	3 p.m.	29·04	—	75°	73°	63°	19°	No clouds. Wind milder. Barometer falling (sign of wind ceasing?). Wind getting warmer, and bending east.
	Wind less in evening, and warmer; ceased about midnight; lasted from eleven p.m., January 28, to midnight, February 2 = five days and five nights. Zodiacal light.							
Feb. 3.	7 a.m.	29·93	—	56°	65°	56°	20°	On deck (wet and dry bulbs in main cabin). Fresh breeze from east. Fleecy clouds south and east.
	Noon.	29·96	—	74°	—	—	25°	On deck. Fine breeze from north.
	In evening cirri to west and east. Black dots in regular lines. Night at Minat Jinái. Very fine and clear; young moon and Venus. Deadly still. Zodiacal light seen every night in the 'Akabah Gulf: not outside it.							
Feb. 4.	7 a.m.	29·92	—	74°	70°	67°	24°	*En route* to Nuwaybi', along Sinai shore. Morning grey; light clouds everywhere. Dull brassy sunrise. Water dark. Wind south, felt very damp. Sinai hills clouded over: cirri strata high up; nimbi in fragments below.
	Noon.	29·86	—	74°	73°	68°	28°	Under awning on board; going north. Sickly sun. Cirri to east.
	3 p.m.	29·80	—	75°	73°	66°	26°	Main cabin. South wind strong, increased after noon. Clear horizon then. Sea foaming: wind became very strong, and raised water about sunset, then fell.
	A regular day of south wind, blasts, mists, and gusts; calmed down in evening. Quiet night. All day cirri and strata high up from west. Wásit sand forming cloud.							

Date.	Time.	Aneroid. Inches.	Aneroid. Milli.	Ther.	Dry Bulb.	Wet Bulb.	Hygr.	Remarks.
Feb. 5.	7 a.m.	30·00	—	72°	68°	60°	9°	*En route* to Kala'h (Jezírat Fara'un of maps), in main cabin. Wind north. Clouds on hill-tops and to north—effects of yesterday. East mountains misty; west clear. Mottle of clouds.
	Noon.	29·94	—	73°	70°	61°	7°	On deck, steaming north. Dry and wet bulbs in main cabin. Clouds—light cumuli to north, east, and west; south clear. Wind north, light.
	3 p.m.	29·97	—	75°	70°	59°	19°	In main cabin off island El-Kala'h. Violent gusts from west, down valleys—deflection of south wind, lasted only few minutes. Cloudy and clear.
	Night clear. Violent gusts from south, lasting a few minutes, then still.							
	ON BOARD "MUKHBIR," OFF ISLAND EL-KALA'H.							
Feb. 6.	7 a.m.	30·12	—	70°	66°	59°	15°	In main cabin. A regular raw and gloomy English morning. Clouds everywhere—drops of rain. Wind south, deflected west. Gusts at times. All felt damp and uncomfortable.
	Noon.	30·10	—	70°	65°	59°	26°	In main cabin. Sky all covered with clouds. Wind from north, gusty. Barometer rising.
	3 p.m.	30·12	—	66°	68°	60°	21°	In main cabin. Sky covered; gleams of sun. Clear to south. Wind north, mild.
	A few drops of rain morning and evening. Pleasant quiet night.							
Feb. 7.	6 a.m.	30·13	—	—	62°	57°	19°	In main cabin. Still; fresh air; no wind. Heavy clouds from west, covering east-west mountains. West mottled; north and south clear.
	3 p.m.	30·10	—	71°	66°	62°	25°	In main cabin. Cool breeze. Hot sun. Cloudy and clear.
	Drops of rain at sunset. Wind west. Heavy rain twice at night; after midnight wetted deck. Rain at 'Akabah from west, with clouds and winds.							
	FROM EL-'AKABAH, GOING SOUTH.							
	Rise of tide off El-'Akabah town, one foot.							
Feb. 8.	7 a.m.	30·20	—	56°	63°	61°	32°	On deck. Dry and wet bulbs in main cabin. At sunrise heavy purple clouds drifting over plain, covering hills on both sides. Cold, raw, wet wind. Rain on Sinai to north-west and south-west. Saw rainbow. Wind gradually turning to east (favourable). Play of light and shade over plains and hills.
	Noon.	30·15	—	65°	64°	57°	22°	In main cabin. Glorious day. Blue sky; bluer sea. Strong breeze. Cloudy and clear.
	3 p.m.	30·16	—	67°	65°	58°	25°	In main cabin. After noon wind gradually fell, and sky cleared; became much warmer. Steamer (five and a half knots) beat the sailing tender. North perfectly clear; south and east, fleecy clouds. Sun clear and warm.
	At sunset red cirri. Wind increased greatly. Waves following us, high and hollow. Bad night. Wind and water high. At midnight (?), rode with head to gale. February 9th, four a.m., turned south. Six a.m. stood for Makná (right angles, and nearly "turned turtle").							

Date.	Time.	Aneroid. Inches.	Aneroid. Milli.	Ther.	Dry Bulb.	Wet Bulb.	Hygr.	Remarks.
				ON BOARD "MUKHBIR."				
Feb. 9.	7 a.m.	30·22	—	—	64°	26°	26°	In main cabin, off Sharm Dabbah. Sky quite clear. North wind colder than ever, yet we are going south. Beginning of dangerous gale which lasted till February 13th. Ugly hollow sea.
	1 p.m.	30·15	—	—	66°	58°	28°	In main cabin. Out of 'Akabah Gulf. Passed into a summer sea. Under lee of Tirán. On deck 63° (F.).
	3 p.m.	30·11	—	—	69°	59°	27°	In main cabin, rounding south of Jezirat Tirán. Sky all clear, except wind cirri over 'Akabah Gulf and to west.
	At nine p.m. halo round moon, and far from it—bad sign! Before midnight gusts began. Increased at one a.m. (February 10). At four a.m. very violent north wind from El-'Akabah.							
Feb. 10.	7 a.m.	30·07	—	—	69°	65°	30°	In cabin of *Mukhbir*, south of Tirán. Water ruffled. Clouds everywhere. Rain on the coast. Felt raw. Mottled sky.
	Noon.	30·03	—	—	72°	64°	38°	In cabin at Tirán. Sun out at nine a.m. Clouds and clear. Windy sky. Cirri to west and north-west. Dark clouds to leeward.
	3 p.m.	29·94	—	—	74°	65°	25°	In cabin at Tirán. Rain-storm to south-west. Wind north. Sky cloudy and clear. Cool breeze, not high.
	At four p.m. a few large drops fell. Heavy rain at El-'Akabah and on east coast. Sand-veil over Sinaitic shore. Six p.m., wind gusty. Rain-clouds all over coast. Wind becoming warm. At 1.15 a.m. (February 11), terrible rush and fall of rain. Wind westing. Mild at first. Five a.m., hard *Gharbi*, threatening *Asyab*. All mist—could hardly see the shore.							
Feb. 11.	7 a.m.	29·82	—	—	71°	67°	35°	To windward of Tirán. Howling west wind. Sun like pale cheese. Aneroid falling. After seven a.m. the storm broke, and we narrowly escaped a wreck in two places, Tirán and Sináfir. Crisis of gale.
	Noon.	29·80	—	—	70°	60°	30°	In Sináfir port, main cabin. Wind west, bending to south on falling.
	3 p.m.	28·20	—	—	72°	65°	24°	In main cabin. Mist and sand. English sun. Wind west and warm. Sea green and breaking.
	At five p.m. the sand-mist began to clear off. Wind died away, then turned north and north-north-east. Light scud over moon, going slowly. Patches of blue, and stars. Barometer rising fast. Perfectly still night till midnight, when it began to blow, about the setting of the moon. At Suez, during the gale, red dust prevented ships seeing one another; and at Cairo trees were uprooted.							
				AT SINÁFIR ISLAND.				
Feb. 12.	„	30·13	—	—	68°	62°	31°	In main cabin. At 3.30 a.m. a violent *Ayli*, like that of El-'Akabah, began to blow. Gusts and shivering water. Swept off all sand-fog.
	Noon.	30·17	—	—	73°	64°	27°	In main cabin. Howling wind. Sea less, because of ebb. Breeze fresh. Sky clear to south; few white clouds to north-east and west. Sun bright and warm.
	3 p.m.	30·14	—	—	75°	65°	24°	In cabin. Wind violent as ever, and cold from north.
	During the night the wind blew from all possible directions; north-east, and at one time due west.							

Date.	Time.	Aneroid. Inches.	Aneroid. Milli.	Ther.	Dry Bulb.	Wet Bulb.	Hygr.	Remarks.
				LEFT SINÁFIR FOR SOUTH.				
Feb. 13.	,,	30·18	—	—	66°	60°	36°	In main cabin. Howling north wind till four a.m., then milder. Hardly a speck of cloud. Fresh cool air from north. Sea very blue. All sail set. Mist-clouds on tallest peaks of coast-range. Wind diminished as we went south. Cirri everywhere, zenith and on horizon.
	Noon.	30·12	—	—	69°	59°	26°	On deck. Soft pleasant air; before cold and hard. Influence of El-'Akabah. Thermometer on deck 69° (F.).
	3 p.m.	30·10	—	—	71°	62°	20°	On board. Sky milky everywhere with cirri. Wind north-west, going west.
	Red sunset. Distant halo round moon—cleared off soon (a good sign), and not well marked. Light westerly gale (No. 2).							
				AT SHARM YÁHÁRR.				
Feb. 14.	7 a.m.	30·06	—	—	64°	58°	22°	In cabin (open). Splendid morning. Wind west, set in hard before noon. Milk-and-water sky. Should have been kept at Sináfir.
	Noon.	30·04	—	—	71°	60°	20°	West wind increased. Sky clear; but Sháfr Mountains cloudy—condensing moisture.
	3 p.m.	30·02	—	—	71°	60°	20°	In cabin. North-west wind strong. Moved ship. Heavy black clouds on mountains.
				ON BOARD "MUKHBIR" AT SHARM YÁHÁRR.				
Feb 15.	,,	30·10	—	—	66°	58°]	30°	In cabin.
	Noon.	30·13	—	72°	—	—	35°	In cabin.
	3 p.m.	30·14	—	75°	—	—	26°	On deck. Clouds above the mountains.
	Cold north-west breeze at five p.m. Sea high. Aneroid observations at Sulphur Mountain—foot, 30·14; top, 29·90; difference ·24 = 250 feet.							
Feb. 16.	7.30 a.m.	30.23	—	—	63°	55°	20°	In cabin. Aneroid unusually high. Clear and cloudy at mountains. Cool air and light breeze.
	12.50 p.m.	30·23	—	—	64°	55°	20°	Cool. Wind north. In cabin.
	3 p.m.	30·20	—	—	66°	56°	18°	In cabin. Cool. No clouds.
	Splendid night. Not a sign of cloud. Cool. White streak on the water (milky sea, like that of Bombay, caused by fish?). Finest weather yet seen.							
				ON BOARD "MUKHBIR."				
Feb. 17.	6 a.m.	30·17	—	66°	—	—	15°	In cabin. Cool, clear, splendid. Forenoon warm and still. Sea glassy.
	Noon.	30·16	—	74°	—	—	20°	In cabin. Sea-breeze came up strong at eleven a.m.
	3 p.m.	30·13	—	—	—	—	23°	In cabin. Sky clouded all the afternoon—did not see the sun. Moon veiled—not a nice look.
	Night very cold (shivery). Wind *Barri* ("land-breeze").							

Date.	Time.	Aneroid. Inches.	Aneroid. Mill.	Ther.	Dry Bulb.	Wet Bulb.	Hygr.	Remarks.
				IN MESS-TENT, OPEN TO EAST.				
Feb. 18.	6.30 a.m.	30·00	—	61°	—	—	14°	Cold and clear. Land-breeze.
	Noon.	30·04	—	78°	—	—	33°	Sea-breeze setting; land-breeze stopped. Sky perfectly clear. Sun hot. No end of flies.
	3 p.m.	30·04	—	78°	—	—	22°	Fierce and violent west wind—a Gharbi, or exaggerated sea-breeze? Sky quite clear.
	Night quite still. Cold wind stopped at nine p.m. rather suddenly.							

OBSERVATIONS TAKEN DURING SECOND MARCH TO THE HISMÁ PLATEAU, SOUTH-EASTERN MIDIAN, BETWEEN FEBRUARY 19 AND MARCH 8, 1878.

The distance traversed comprised 222¼ statute miles, mostly through unexplored country.

On return compared aneroids:—

French	763	millimètres.
My Casella	762	,,
Difference ...	·901	,,

Date.	Time.	Aneroid. Inches.	Ther.	Hygr.	Remarks.
Feb. 19.	6.20 a.m.	30·07	65°	23°	In big tent at El-Muwaylah. Cool land-breeze. Sky quite clear.
	Noon.	29·82	74°	23°	At Wady Surr, under tree in sea-breeze. Clear sky, few white clouds. Cold land-breeze in Wady Surr at ten a.m.; cold sea-breeze at eleven a.m.
	3.40 p.m.	29·60	76°	20°	At Safh Wady Malayh (*Malih*), in big tent. Feels as if high up.
	Night perfectly still, except a gust about midnight.				
Feb. 20.	6.25 a.m.	29·53	60°	21°	In big tent at Safh Wady Malayh. Clear and fine.
	11.20 a.m.	29·40	73°	43°	Under tree at base of western Ghâts. Fine cool sea-breeze.
	3 p.m.	29·44	78°	17°	At Sayl Wady el-Jimm ("water-gathering"). Hot sun Cold sea-breeze.
	Night cold, with land-breeze.				
Feb. 21.	6.15 a.m.	29·38	64°	7°	In big tent at Sayl Wady el-Jimm. Clouds to north and east; air damp. High wind and clouds.
	12.45 p.m.	28·82	71°	25°	On march up Wady Sadr, under tree. Cold sea-breeze. Sky quite clear; sun warm. Awful east winds down these Wadys form the *Gos* or sand-heaps.
	3.30 p.m.	28·86	76°	7°	In small tent at El-Nagwah, in Wady Sadr. Sun hot; breeze cold.
	Night cold, but not so cold as we expected.				

Date.	Time.	Aneroid. Inches.	Ther.	Hydr.	Remarks.
Feb. 22.	6 a.m.	28·86	56°	8°	In big tent at El-Nagwah.
	11.50 a.m.	25·40	65°	4°	Under tree in Wady Sadr; say, 1600 feet high. White clouds. West wind (sea-breeze deflected to north) blowing. Here cold comes from wind.
	3 p.m.	27·80	74°	3°	In big tent at Amwáh el-Rikáb, Wady Sadr.
	At four p.m. cold and clouds; cumuli and cirri. West wind deflected to north. At five p.m. thermometer in tent 66°. Fire in tent. Night cold, clear, and still. A few gusts about midnight.				
	AT HEAD OF WADY SADR.				
Feb. 23.	6.30 a.m.	27·80	53°	5°	In big tent, foot of Ghâts. Weather lovely—clear, fine, and cold. At eight a.m. sun warm, then cold wind.
	1.30 p.m.	26·88	72°	5°	In big tent. Cold easterly gale.
	4 p.m.	26·90	65°	2°	In small tent, same place.
	Violent wind at midnight. Cold; thermometer 38°.				
Feb. 24.	6 a.m.	26·95	48°	0°	At head of Wady Sadr.
		26·15	45°	0°	To summit of Khuraytat el-Jîls (Pass). Above the Pass, aneroid 26·25; below, 26·70: difference, ·55 = 450 feet. Walked down in twenty-six minutes.
	11.30 a.m.	26·18	56°	0°	In the open, under shade. Perfectly clear of clouds. Sun hot.
	3 p.m.	26·26	66°	− 2°	In big tent on Hismá plateau (short descent to camping-ground). Air clear; sun hot.
	Very cold when sun sets. Gusts from east at night.				
	ON HISMÁ PLATEAU.				
Feb. 25.	6.30 a.m.	26·30	42°	3°	In big tent.
	12.30 p.m.	27·84	74°	12°	At foot of Khuraytat el-Jîls. Still, no wind; no clouds.
	3.30 p.m.	27·83	78°	17°	No wind; no clouds.
	Night splendidly clear and still. Felt warm.				
Feb. 26.	6 a.m.	27·72	64°	2°	In big tent on Hismá plateau. Glorious orange-coloured dawn. Mild north wind. Moon in last quarter. At eight a.m. good breeze from north; at eleven a.m. cool and pleasant breeze from east.
	Noon.	28·00	70°	− 8°	On march in Shafah Mountains. Hot sun. Cold wind.
	3 p.m.	28·30	85°	− 4°	Camp Majrá el-Ruwaya. In small tent. Strong west breeze in gusts.
	Night glorious at foot of the two Passes.				
Feb. 27.	6 a.m.	28·10	65°	− 4°	On ground outside tent at Majrá el-Ruwaya. Sky overhead quite clear; a few flecks to south, low clouds to east. At 8.30 a.m. wind south. Sun at first hot; then sky cloudy.
	11.45 a.m.	28·48	80°	3°	At El-Rahabah, head of Wady Dámah, under tree. Fine sea-breeze. High white strata to north-east and south. No clouds elsewhere.
	5 p.m.	28·56	76°	− 5°	Under thorn-tree at Wady Dámah. Fleeting cirro-cumuli.
	Night very cold. Not a sign of dew till we returned on board *Mukhbir*.				
Feb. 28.	6 a.m.	28·50	44°	− 5°	At Wady Dámah, on box in open. Clouds and sea-breeze at 8.45 a.m.
	1 p.m.	28·19	70°	19°	Under tree at Shuwák ruin. Thermometer in sun, 82°. Bits of cumuli from south. At two p.m. furious wind and dust (sand-devils) scouring up valley from south, also deflected to west by Pass gorge. "Sand-devils" in Wadys Surr, Sadr, Dámah, Shuwák, and Salmá.
	3 p.m.	28·19	71°	16°	In big tent.
	A few gusts during early part of night; the rest very still. Cold and clear.				

Date.	Time.	Aneroid. Inches.	Ther.	Hydr.	Remarks.
					AT SHUWÁK RUIN.
Mar. 1.	6.45 a.m.	25·30	46°	10°	Very cold; hands chilled. Land-breeze at eight a.m. At barrage (dam), aneroid 28·36.
	Noon.	28·37	76°	17°	In small tent. Noon hot. Wind gusty—not regular and strong as yesterday.
	3 p.m.	28·34	77°	6°	In small tent. Sky clear; air still and sultry.
Mar. 2.	6 a.m.	28·30	58°	11°	In big tent at Shuwák. Air still. Clouds to east. Afterwards sky mottled, windy striæ. At seven a.m. rainbow without rain; thin cloud north of sun; perpendicular streak, brilliant enough: lasted twenty minutes.
	9 a.m.	28·75	66°	—	At Shaghab ruin. Sea-breeze at eleven a.m. Clear and cool. Day slightly cloudy; sun partly hidden.
	3 p.m.	28·60	86°	15°	In big tent at Majrá el-Wághir. Mild sea-breeze. Hot sun. High clouds.
	Night windless, except few occasional gusts. Stars veiled. Grand zodiacal light (now the regular thing). Cool and pleasant.				
Mar. 3.	6 a.m.	28·55	66°	14°	At Majrá el-Wághir, outside tent. Sky cloudy; mist to north, "mackerel's back" to east. Sea-breeze at 9.30 a.m. in Wady Dámah.
	Noon.	29·13	75°	16°	Under tree in Wady Dámah. Cool wind from south-west. A few clouds, getting gradually darker to west and south-west.
	4 p.m.	29·20	78°	15°	At El-Kutayyifah (camp) under a tree. Cool south-west wind.
	6 a.m.	29·30	63°	16°	Cold north wind. Sea-breeze at nine a.m. In big tent at El-Kutayyifah.
Mar. 4.	11.30 a.m.	29·33	68°	11°	In shade of rock, Umm Ámil.
	4 p.m.	29·63	80°	10°	In small tent at Má el-Badí'h, Wady Salmá. Cold, stiff gale: dust-laden sea-breeze up the ugly gorge.
	5.45 a.m.	29·50	60°	13°	At Má el-Badí'h, on box in open air. Air clear; thin threads to south.
Mar. 5.	12.30 p.m.	30·06	84°	− 3°	At Zibá, in big tent, open east and west, fronting the bay.
	2.45 p.m.	30 00	82°	+ 4°	At Zibá, in small tent.
					AT ZIBÁ, IN CAMP (our second halt).
Mar. 6.	6 a.m.	29·92	61°	15°	In big tent. Rather heavy clouds to east and elsewhere. Sea-breeze began at ten a.m.
	Noon.	30·04	86°	10°	In big tent. Air dull and heavy. "Rain-sun."
	3.45 p.m.	30·00	81°.	3°	Sky quite clear.
	Storm at sunset. Heavy clouds rising over arch from west to north: all said meant wind. At seven p.m. violent gusty gale; nearly blew down tents. Rushing and furious rain from north-west. Gusts lasted long. Fell about eleven p.m. Rose again very violently at midnight; then blew itself out. Followed by cold air. Rain lasted about one hour; damped the ground, and left deep puddles in the rock-hollows. Never had thunder and lightning in Midian.				
Mar. 7.	6 a.m.	31·12	58°	− 15°	At Zibá, on box. Cold and clear. A few clouds to west.
	11.30 a.m.	29·96	74°	+ 19°	At Jebel el Ghál, in shade in the open. Fine west wind.
	Night and morning cold. On summit of Jebel el-Ghál, aneroid 29·75.				
Mar. 8.	6 a.m.	30·04	51°	11°	At Máyat el-Ghál (camp), on box.

March 8th is the 30th (last day of) Imshir (February), 1094.
March 9th is the 1st of Barmáhát (March). See Chap. I. p. 22.
In the early days of Barmáhát they expect the *Ḥarám* or violent wind which destroyed the tribe of Ád.
After seven nights and eight days begins the *Bard el-Agúz*, or "old man's cold."
On Barmáhát 12 (March 20) is the *Intikál el-Shams*, or "vernal equinox;" after which the weather becomes warmer.

OBSERVATIONS TAKEN ON BOARD "MUKHBIR" IN SHARM YÁHÁRR, BETWEEN MARCH 8 AND MARCH 12, 1878.

Date.	Time.	Aneroid. Inches.	Ther.	Dry Bulb.	Wet Bulb.	Hygr.	Remarks.
Mar. 8.	12.40 p.m.	30·08	74°	—	—	18°	Main cabin, *Mukhbir*.
Mar. 9.	7 a.m.	30·10	20°	69°	62°	—	In cabin.
	12.30 p.m.	30·13	73°	72°	64°	—	Quite clear. Fresh sea-breeze.
	3 p.m.	30·11	75°	74°	64°	—	Clouds white and streaky everywhere.
	In the evening clouds on hills and mountains, especially the Shárr; elsewhere clear. Red sunset, grand. At night dew heavy on board *Mukhbir*; gunwales wet in morning. Moon with kind of half halo round her. Night very hot—sign of coming storm.						
	At noon compared ship's (*Mukhbir*) mercurial barometer ... 773 millimètres.						
	With my aneroid by Casella ... ... 765 } same millimètres.						
	And (Mr. Duguid's) *aneroïde* ... ... 765 }						
	Difference ... − 008 millimetres.						
	On December 19, 1877, ship's difference + 007 ,,						
	Difference ... + 001 ,,						
Mar. 10.	6.30 p.m.	30·12	73°½	69°	61°	—	In cabin. Clouds on Shárr like flights of birds, low-lying banks to south. Morning slightly muggy: no breeze.
	Noon.	30·12	76°	75°	60°	—	In cabin. Gentle sea-breeze. Sky quite clear.
	3 p.m.	30·11	76°	76°	66°	—	Cool, pleasant sea-breeze.
	Fine night, pleasant and cool.						
Mar. 11.	6 a.m.	30·10	73°	68°	65°	—	In cabin. Splendid morning.
	Noon.	30·10	—	80°	64°	—	In cabin. Glorious day; sea-breeze cool and fresh.
	3.30 p.m.	30·05	78°	77°	65°	—	In cabin. Sea-breeze lively and strong.
Mar. 12.	7 a.m.	30·04	—	67°	61°	—	In cabin. Warmish. Splendid sunrise on Shárr; cold to north, warmer tints in centre, and glowing red-yellow flush to south.
	3 p.m.	30·03	78°	77°	70°	—	In cabin. Fine cool sea-breeze.
	Tides high and low (March) pier shows difference of three feet in rise, about the mid-length of Sharm Yáhárr.						

OBSERVATIONS TAKEN DURING EXCURSION (SECOND MARCH) ON AND AROUND THE SHÁRR MOUNTAIN, BETWEEN WEDNESDAY, MARCH 18, AND MONDAY, MARCH 18, 1878.

The distance traversed comprised 59 miles.

On return compared aneroids:—

French (left on board *Mukhbir*) ...	758	millimetres.
My Casella	756	,,
Difference	002	,,

Date.	Time.	Aneroid. Inches.	Ther.	Hygr.	Remarks.
Mar. 13.	6.20 a.m.	29·96	66°	23°	On deck of *Mukhbir*. Cool land-breeze; hot at nine a.m. Sea-breeze at 10.45. At Wady Sanawíyyah aneroid 29.60.
	3 p.m.	29·26	82°	13°	Under tree (acacia, but shady). Grand sea-breeze from one to three p.m.
	Warm night under the Shárr, stones retaining heat. Moon misty. Very heavy dew, like rain; wetted boxes; saw for the first time inland. Will last for some three months, and must greatly assist vegetation.				
Mar. 14.	6 a.m.	29·30	68°	28°	In big tent. All the sky clouded over as if rain coming. Sea-breeze 10.30.
	Noon.	29·60	88°	28°	Camp at Safh Wady Kusayb. Cloudy and sultry all day. Little sun, except from nine till eleven a.m. Rain-heat; seems to threaten rain.
	3 p.m.	29·56	86°	23°	In big tent. Sultry—feels like storm.
	At night, violent storm of wind from north-east, with nasty warm gusts. The people call it *Sabák*, probably for Sabá, the "Zephyr"—the Bád-i-Sabá of poetry; also *El-Farawí*, because it blows at night. Big tent down in a moment, as at Makná. N.B.—No wind-storm on the coast. At foot of Abú Sha'ar Pass, aneroid 28·80; at foot of quartz-vein (wall), 28·50.				
Mar. 15.	6 a.m.	29·50	76°	+ 1°	In big tent at Safh Wady Kusayb, north-east wind still blowing. No dew in morning.
	11.45 a.m.	29·22	93°	− 5°	In Wady Surr. Curious windy cirri to west. Wind blew itself out in Wady Surr. Pleasant sea-breeze from south.
	3 p.m.	28·93	100°	− 14°	In big tent at Safhat el-Wu'ayrah, Wady Surr. Cloudy. Wind from south, a deflected sea-breeze.
	ASCENDING SHÁRR MOUNTAIN.				
Mar. 16.	6 a.m.	29·86	70°	+ 2°	On box outside tent. Morning grand; still, clear, warm, and dry. At seven a.m., going uphill, aneroid 28·20; at 7.35, half-way up, 27·70.
	9 a.m.	26·83	63°	+ 3°	
	Noon.	26·70	82°	—	Under rock. Pleasant sea-breeze from north-east. Sun hot; day quite clear.
	3 p.m.	26·76	86°	+ 3°	Shade of rock, summit of outlier. Strong wind from west.
	Mean of two observations on summit of outlier, 26·79 = 3,200 feet above sea-level.				
	EN ROUTE TO THE COAST.				
Mar. 17.	9 a.m.	28·36	80°	+ 3°	Under tree. Very hot sun that tired all. Breeze at 8.30 a.m.
	11 a.m.	28·76 (?)	93°	—	Same place. At summit of Pass el-Kuwayd, aneroid 28·13; in Wady Kuwayd, 28·20. } Very small descent to 28·50, say 400 feet.
	3.40 p.m.	28·65	90°	− 9°	In big tent.

Date.	Time.	Aneroid. Inches.	Ther.	Hygr.	Remarks.
			ON THE RETURN MARCH TO SHARM YÁHÁRR.		
Mar. 18.	4.20 a.m.	28·63	73°	− 4°	Complete change of climate. No *Khamsín* to-day. Fine sea-breeze in puffs at 9.30 a.m.; came up strong about noon.
	11.45 a.m.	29·43	91°	+ 5°	Under tree in Wady el-Bayzá.
	On March 17th began what our Egyptians called the *Khamsín*, and the Arabs *El-Dufán* (Bedawin, *Dafán*) generically; and specifically *Dufán el-Surâyyá* ("of the Pleiades"). Sky dark without clouds. At night, yellow clouds over moon. Gusts alternately hot and cold. Highly electrical; few could sleep at night. Tents left open. It was followed by damp and gloomy weather, which the Arabs attribute to the *Intikál el-Shams* ("vernal equinox"). This began on March 19th, and lasted till the 22nd. Aneroid falls lower than we have yet seen it.				

OBSERVATIONS TAKEN ON BOARD SCREW-STEAMER "SINNAR," BETWEEN MARCH 18 AND MARCH 20, 1878.

Date.	Time.	Aneroid. Inches.	Ther.	Dry Bulb.	Wet Bulb.	Hygr.	Remarks.
Mar. 18.	3 p.m.	29·91	84°	—	—	24°	In main cabin. A few light clouds.
Mar. 19.	7 a.m.	29·83	—	70°	64°	—	Under deck awning. Morning still, calm, and muggy. Clouds everywhere. Presently cool land-breeze came up. Regular *Khamsín* at eight a.m.
	Noon.	29·80	—	79°	71°	—	In captain's cabin. Cloudy and cool.
	3 p.m.	29·76	—	79°	70°	—	In captain's cabin. Afternoon sultry. Wind *Asyab*, and from south. Seems to threaten a storm. Heavy clouds from west and north-west.
Mar. 20.	7 a.m.	29·82	—	75°	71°	—	In captain's cabin. Sultry, "juicy" morning.
	Noon.	29·75	—	76°	70°	—	Dark and cloudy. Cool wind from south-west.
	4 p.m.	29·80	—	76°	68°	—	In captain's cabin. Sultry air; no breeze; nasty and damp. Cloudy all over. A storm somewhere (Alexandria? Suez?). Swell on sea, breaking on south reef; comes from north-west. Weather looks like that of Europe.
	About eight p.m. a cool draught from north. No moon or stars. Expect it to end either in a gale or in heavy rain. It ended on morning of March 22nd, with a fine north wind; and at 9.10 p.m. with slight earthquake.						

OBSERVATIONS TAKEN ON BOARD SCREW-STEAMER "SINNÁR," DURING VOYAGE FROM SHARM YÁHÁRR TO EL-WIJH, EL-HAURÁ, ETC., BETWEEN MARCH 21 AND MARCH 29, 1878.

Date.	Time.	Aneroid. Inches.	Ther.	Dry Bulb.	Wet Bulb.	Hygr.	Remarks.
				STEAMING SOUTH.			
Mar. 21.	7 a.m.	29·76	—	75°	71°	—	In captain's cabin. Aneroid very low. Wind south-west. Ugly, gloomy weather. Mountains misty. Very slight roll in sea—became heavy in afternoon—*mar vecchio* (*Bahr madfún*). Bursts of half sun after nine a.m.
	12.40 p.m.	29·84	—	77°	71°	—	Aneroid rising. At noon sea quite calm and oily. Shortly after, sea-breeze from west set in. About one p.m. made sail; rolling began. More sun. Sails down. At two p.m. rolling heavy, cross sea (*mar vecchio*).
	3.30 p.m.	29·85	—	76°	73°	—	Damp increases.
	After five p.m. sky clearer and weather finer, but still dark to south. Stars veiled.						
				IN MARSÁ DUMAYGHAH.			
Mar 22	6.15 a.m.	29·92	—	73°	66°	—	In cabin. Morning cool. Wind north. Total change of weather. Sky clear, except cirri, and wind increased. White "horses" outside. All nature gay.
	Noon.	30·01	—	79°	65°	—	In cabin. Damp disappeared.
	3 p.m.	30·90	—	74°	64°	—	Fine, strong, bright sea-breeze. North wind, threatening to blow hard. Cloudy and clear. Windy sky.
	At 9.10 p.m. earthquake from north to south; lasted twenty seconds; followed by strong north wind, which lasted only a short time. So end the Equinoctials.						
Mar 23.	6 a.m.	30·00	—	70°	61°	—	At Dumayghah. In cabin. Glorious morning; cool, calm, bright. Zephyr from north. At noon a few wind-clouds and cirri to north and west. Very heavy rolling (*mar vecchio*) from north-west. Long waves.
	3 p.m.	29·98	—	74°	65°	—	At El-Wijh. Pleasant, cool north wind. Afternoon cloudy and cold, as if wind came through rain.
	Cleared in the evening. Saw stars.						
				AT EL-WIJH, IN PORT.			
Mar. 24.	5.45 a.m.	29·94	—	71°	68°	—	In cabin. Grey, cloudy morning. No cold.
	3 p.m.	29·98	—	74°	65°	—	In cabin. Fine north breeze. Warm sun. Air cool. Wind-clouds to east; the rest blue. Sky wondrous clear.
	At 4.30 p.m. left El-Wijh, and steamed nearly due south-west. Fine breeze and long waves from north-west. Wind and waves fell. Rolled horridly from seven p.m. to midnight: no ballast; very bad steering: then turned south-east, and movement somewhat improved. Very heavy dew. Zodiacal light clear.						
				IN CABIN AT SEA.			
Mar. 25.	7.30 a.m.	30·04	—	73°	68°	—	Marvellous fine morning. Wind north. Glorious day.
	12.15 p.m.	30·01	—	75°	64°	—	Near El-Haurá. Lovely day. Steady north breeze.
	4 p.m.	29·97	—	77°	69°	—	

Date.	Time.	Aneroid. Inches.	Ther.	Dry Bulb.	Wet Bulb.	Hydr.	Remarks.
				NEAR EL-HAURÁ.			
Mar. 26.	6 a.m.	29·94	70°	—	—	36°	In cabin. Red morning, warm and still. Sea oily. Light mists. Venus throws shadow. Very heavy dew—all wet.
	12.15 p.m.	29.91	—	74°	70°	—	Same place. Warm sun; cool breeze from north.
	3.20 p.m.	29·87	—	78°	74°	—	At sea. Cirri and wind-clouds to east and nearly everywhere.
	Weather fine, yet glass falling. Damp air. Hence (possibly) many have colds, coughs, and hoarseness. Wind-clouds, but clear to north. Dew very heavy.						
				RETURNING NORTH TO EL-WIJH.			
Mar. 27.	7 a.m.	29·87	—	73°	68°	—	In captain's cabin. Dew-clouds everywhere. Air very damp.
	11.45 a.m.	29·98	—	78°	70°	—	Air still and pleasant.
	3 p.m.	29·85	—	78°	72°	—	Day decidedly hot and damp. Aneroid very low.
Mar. 28.	6.30 a.m.	29·89	—	70½°	68°	—	In cabin. Dew wetted tents and decks like heavy shower. Sky all dew; air feels soppy. Violent wind from north-west. Ship rolling.
	1 p.m.	29·97	—	70½°	67°	—	
Mar. 29.	7 a.m.	29·97	71°	—	—	33°	In cabin. Strong, cold north wind. Men coughing like cries of camels. Sky very clear. This kind of storm is called *Hawwá el-'Uwwak* ("last storm of March"), and blows fourteen days. Followed by *El-Ni'dm el-Kabir* ("greater"), and *El-Saghir* ("less"); continues forty days.
	6 p.m.	28·78	74°	—	—	30°	At Fort El-Wijh, two hours' journey up the valley.
	Fine day on seaboard—not much gale. Wind north-west. Night cool, but no dew. Ship's barometer, 6 a.m., 30·7 ... ... Ther. (F.) 64°. ,, noon, 30·7 ... ... ,, 76°. ,, 3 p.m., 30·7 ... .. ,, 76°.						

OBSERVATIONS TAKEN DURING THIRD MARCH, FROM EL-WIJH TO EL-BADÁ AND BACK, BETWEEN MARCH 30 AND APRIL 11, 1878.

Compared ship's (*Sinnár*) mercurial barometer, 30·07 (64° F.), with anerold, 30·01 ; difference, aneroid,—0·06.

On return compared ship's (*Sinnár*) mercurial barometer, 29·99, with aneroid, 29·86 ; difference, aneroid,—0·13.

Date.	Time.	Aneroid. Inches.	Ther.	Dry Bulb.	Wet Bulb.	Hygr.	Remarks.
Mar. 30.	5.30 a.m.	29·70	64°	—	—	24°	At Fort El-Wijh, on box before tent. Cold and cloudy morning. Moon and stars veiled.
	Noon.	29·55	90°	—	—	43°	In camp at Umm el-Karáyát—deep valley. Puffs of sea-breeze from south. Strong sun.
	3.15 p.m.	29·50	86°	—	—	29°	In big tent at Umm el-Karáyát—lat. 26° 13′. Sun very hot. Fresh and strong sea-breeze from east (?).
	Cool and pleasant night. No sign of dew. Climate healthy. Garrison at Fort El-Wijh in excellent condition.						
Mar. 31.	5 a.m.	29·44	45°	—	—	19°	In big tent at Umm el-Karáyát. Very clear, still morning. West pink. At sunrise wind, and hot and cold puffs (south-east and land-breeze).
	11.10 p.m.	29·46	90°	—	—	− 3°	At Wady el-Kubbah, under tree. Very hot. Wind shifting from east to west (sea-breeze). Stones in sun so hot that they cannot be held. At noon regular *Khamsín*; air sandy. Top of Jebel el-Kubbah, aneroid 29·34 ; in valley below, aneroid 29·46 (47 ?) ; height, 120 feet.
	3 p.m.	29·30	94°	—	—	− 20°	At Máyat el-Dasnah. Hot west wind. Thermometer in big tent, unwalled.
	Night cool.						
April 1.	,,	29·30	63°	—	—	− 12°	At Máyat el-Dasnah. Morning pleasant, still, and quite clear. No sign of dew or *Khamsín*. Hygrometer exceedingly dry. Sun rose hot. Slight breeze from eight a.m. to 8.30 a.m., when the rocks and stones have become thoroughly heated. Very refreshing : cools head ; stops perspiration.
	9.30 a.m.	28·96	83°	—	—	− 10°	At foot of Marú Rábigh, in shade of rock.
	12.30 p.m.	28·92	99°	—	—	− 8°	At Marú Rábigh, under big tent awning. About noon a medley of winds ; hot blasts of *Khamsín* from south-west, suddenly changed to north.
	3 p.m.	28·88	100°	—	—	− 25°	At Marú Rábigh. Hot sun. Wind in puffs, mostly south-west. No sand in air. Stones in sunshine too hot to hold ; yet there are flies.
	This is second day of *Khamsín*. Comes up about ten a.m. ; wind either too much or too little. At 2.5 p.m. nearly blew tent down.						

Date.	Time.	Aneroid. Inches.	Ther.	Dry Bulb.	Wet Bulb.	Hydr.	Remarks.
April 2.	5.10 a.m.	28·98	70°	—	—	− 6°	At foot of Marú Rubayyigh in Wady Rábigh. Morning perfectly still. All appearance of *Khamsín*. Light horizontal striæ to north.
	Noon.	29·15	92°	—	—	− 18°	At Abú Gezáz valley, under tree. Much bothered by small flies.
	3·10 p.m.	29·14	100°	—	—	− 25°	In big tent, which was again blown down.
	Third day of *Khamsín*. All animals weak and worn out. Wind comes up later—11.30 a.m. to noon. Gives feeling of faintness and awful thirst. "Devils" (*Zawábah*) rose high in valley with electrical whirl. Evening lowering. Wind or rain clouds from west and north. Night still and cool. Threatening clouds east and west.						
April 3.	5 a.m.	29·20	65°	—	—	− 13°	At Abú Gezáz valley. Morning cool (sign *Khamsín* gone). Sun pleasant. Red wind-clouds to north and east. At six a.m. pleasant, cool land-breeze from south.
	Noon.	28·80	90°	—	—	− 16°	At El-Badá, under palm-tree. Wind west. Milky sky, all white.
	3 p.m.	28·75	95°	—	—	− 24°	In big tent. Regular *Khamsín*—very nasty. Clouds to west.
	Night still. Neither warm nor cool. Climate fine. Colds and coughs disappeared.						
	AT EL-BADÁ.						
April 4.	5·30 a.m.	28·70	68°	—	—	− 7°	On box outside tent. Traces of dew. White clouds. Looked regularly like a *Khamsín* day.
	Noon.	28·74	90°	—	—	+ 2°	In big tent. No sun. Air muggy. White gleams. View poor; like rain. Strong blast from south-west. Heavy clouds west and north. Drops of rain fell three times between one p.m. and three p.m.
	3 p.m.	28·70	90°	—	—	− 8°	
	At four p.m. in west a dust like general or prairie fire. A few drops of rain fell at long intervals—could not catch any for photographs. Broad parallel veins of white, red, and black cloud rising from east to west. Puffs of cold wind came on, soon growing to blasts; then storm came down upon us. No thunder or lightning. Kind of "dust-bow" in west (no rain), half the arc. Wind then turned north and felt cold and rainy. Heavy cloud-bank to west. Forms of mountains crept out of the brown and purple mist, half dust, half rain. All enjoyed storm. No rain for two years has fallen here. Rainbows at El-'Akabah (double) and at Shuwák (single). Cool and pleasant night, with dew. Mean of six aneroid observations at El-Badá, 28·72. After leaving El-Badá mornings and evenings delightful; sun warm in day; nights cool and pleasant. Dust at times.						
April 5.	4.30 a.m.	28·65	—	—	—	− 8°	In big tent at Badá. Dust "devils." Great change after rain. Very damp.
	3 p.m.	28·58	86°	—	—	− 3°	At 'Ayn el-Kurr, under shade of rock. Strong north wind.
	Though all prophesied *Asyab* or "south-easter," this was perhaps the finest of all our days. Night cool. Cold wind at one a.m., of which all complained.						
April 6.	5.45 a.m.	28·59	58°	—	—	+ 6°	At 'Ayn el-Kurr, on box outside tent. White clouds to south. No wind. False sea-breeze at seven a.m.; true at ten a.m. Cloudy forenoon.
	11.45 a.m.	28·90	84°	—	—	—	In Wady el-Kurr.
	3 p.m.	28·87	87°	—	—	− 3°	At Wady Laylah, in big tent. Afternoon windy as usual. Puffs from west (sea-breeze), cold. Sky quite clear. Mountains milky.
	Night cool, but not cold.						
April 7.	4.15 a.m.	28·80	60°	—	—	+ 5°	In big tent at Wady Laylah. Morning especially bright. Lucifer like a little moon. Breeze at eight a.m.
	Noon.	29·39	54°	—	—	+ 2°	In Wady Birkat, under rock. Going down seawards fast. Cool west wind. Good sea-breeze. Sky and sun clear—sun not unpleasant. Hot in sheltered bends.
	3.10 p.m.	29·46	81°	—	—	+ 4°	At Abá'l-Ajáj, under tamarisks.
	Dew at night.						

Date.	Time.	Aneroid. Inches.	Ther.	Dry Bulb.	Wet Bulb.	Hygr.	Remarks.
April 8.	5 a.m.	29·55	60°	—	—	+27°	Outside tent at Abá'l-'Ajáj. Cool morning; warmer at eight a.m. before breeze set in.
	Noon.	29·94	83°	—	—	22°	At the temple (*El-Gasr*), Wady Hamz. Sand-dust with sea-breeze, terrible at temple and around it. Eyes filled, clothes covered. Saw mirage—well defined for first time.
	3 p.m.	29·90	52°	—	—	+20°	At Wady Hamz. Hygrometer damp on account of sea-breeze.
April 9.	4 a.m.	29·92	70°	—	—	+25°	Still, clear, and beautiful, like all these mornings. Hot sun. Blue sea, glassy near the shore. Puffs of wind from east.
	Noon.	29·90	96°	—	—	−8°	In big tent at Wady Mismáh. Cool breeze from north-east. Heat strongly reflected from quartz. Vegetation dreadfully dry; plants look dead. Two bad years.
	3 p.m.	29·74	92°	—	—	−18°	In big tent at Abá'l-Marú. Another nasty afternoon. High west wind—sea-breeze, not *Khamsín*; tent almost blown down. Dust dreadful.
	Evening charming. Night admirably cool.						
April 10.	4.20 a.m.	29·74	—	—	—	0°	In big tent at Abá'l-Marú. Splendid morning; few striæ in east. Will be hot.
	4.30 p.m.	29·95	—	76°	73°	—	On board *Sinnár*, captain's cabin. Pleasant afternoon. Cool sea-breeze.
			ON BOARD "SINNÁR."				
April 11.	6 a.m.	29·86	—	70°	66°	—	In captain's cabin. Felt damp strongly after the Desert.
	12.30 p.m.	29·87	—	78°	74°	—	All complaining of heat (white heat); damp is the cause. No sea-breeze to speak of.
	3.15 p.m.	29·83	—	79°	75°	—	White clouds everywhere. Curious wind-clouds, not a little like comets.
	Heavy dew. Streets of El-Wijh wet.						

OBSERVATIONS TAKEN ON BOARD SCREW-STEAMER "SINNÁR," EN ROUTE FROM EL-WIJH TO SUEZ, FROM APRIL 12 TO APRIL 17, 1878.

Date.	Time.	Aneroid. Inches.	Dry Bulb.	Wet Bulb.	Remarks.
April 12.	6.20 a.m.	29·89	78°	73°	*En route* to El-Muwaylah, captain's cabin. Red sunrise. Clouds thin all about horizon. Looks like regular *Khamsín* day. Feels exceedingly damp.
	12.20 p.m.	29·80	79°	70°	In dead calm. Sea oily, like mirror. No winds. Thin white clouds everywhere.
	3.35 p.m.	29·78	81°	76°	In captain's cabin. Wretched day at El-Wijh and ashore. Very muggy.
	At night a "bruch" (halo) of clouds round moon, and far from it. Expect storm. "Bruchs" round moon on 13th, 14th, and 15th.				
April 13.	Noon.	29·84	78°	70°	Anchored before El-Muwaylah. No dew in morning, and clouds everywhere. No sun seen. Very hot at noon. White clouds everywhere. Smoke of steamer hangs low. Mountains look very high. Muggy. Fine drinkytite.
	3 p.m.	29·80	83°	73°	At Sharm Yáhárr. Hot and sweaty. Light west wind rose after noon; soon fell.
	At night clouds and "bruch." Clear to north, thick to south.				

Date.	Time.	Aneroid. Inches.	Dry Bulb.	Wet Bulb.	Remarks.
April 14.	6.30 a.m.	29·82	78°	72°	At Sharm Yáhárr. Nasty muggy morning. Light north breeze set in.
	12.40 p.m.	29·88	82°	75°	
	3 p.m.	29·85	83°	76°	Warm and cloudy.
	Weather threatening. The same storm that found us at Makná last year.				
April 15.	,,	—	—	—	Water flooded pier, and waves broke on shore.
April 16.	,,	—	—	—	Ran to El-Muwaylah. Had to return to Sharm Yáhárr. Furious wind from west (Gharbi) began about nine a.m.
April 17.	Noon.	29·98	77°	65°	In captain's cabin, Sharm Yáhárr.
	3 p.m.	29·92	76°	65°	
	Wind changed to north. Weather became cool and pleasant. Gale still, but shows signs of abating.				
	On April 18th weather somewhat abated. Stopped at El-Muwaylah to drop Sayyid 'Abd el-Rahím; and steamed off for Suez, where we arrived on 20th. Voyage very slow in teeth of north wind. Yet at Suez had had south wind for some days, and congratulated us upon the fact.				

OBSERVATIONS TAKEN BY MR. DAVID DUGUID, BETWEEN JANUARY 8 AND FEBRUARY 1, 1878.

(He used the French *aneroïde* and the Centigrade thermometer bought at Cairo.)

Date.	Time.	Aneroid. Millimètres.	Thermometer. Centigrade.	Remarks.
Jan. 8.	Noon.	768	25°	At Sharmá camp.
Jan. 9.	Noon.	768	25°	Ditto.
Jan. 10.	Noon.	761	26°	Ditto.
Jan. 11.	Noon.	763	19°	Dittó.
Jan. 12.	Noon.	763	19°	Ditto.
Jan. 13.	Noon.	760	30°	Ditto. Very hot.
Jan. 14.	Daylight.	760	20°	Very hot.
	(?)	755	25°	
	8 p.m.	758	23°	
Jan. 15.	(?)	757	21°	Hot.
	(?)	757	25°	
	Nightfall.	759	20°	
Jan. 16.	Daylight.	762	18°	Mr. Duguid marched from Sharmá to El-Muwaylah.
Jan. 17.	Sunset.	768	25°	On board *Mukhbír* at Sharm Yáhárr.
Jan. 18.	Sunrise.	766	22°	On board *Mukhbír*.
	(?)	766	23°	Ditto.
	Sunset.	764	28°	Ditto. Hot.

Date.	Time.	Aneroid. Millimètres.	Thermometer. Centigrade.	Remarks.
				ON BOARD.
Jan. 19.	Sunrise.	763	21°	
	Noon.	762	25°	
	Sunset.	763	25°	
Jan. 20.	Sunrise.	761	21°	
	Noon.	762	25°	
	Nightfall.	762	28°	Hot.
Jan. 21.	Sunrise.	763	23°	Bad weather at Sharm Yáhárr.
	Noon.	763	24°	
	Sunset.	767	25°	
Jan. 22.	Sunrise.	769	19°	*Mukhbír* delayed by bad weather.
	Noon.	768	24°	
Jan. 24.	Noon.	767	24°	
	Mr. Duguid steamed out of Yáhárr for Makná. Anchored off Sináfir Island			
Jan. 25.	Sunrise.	767	23°	Reached Makná.
	Noon.	766	24°	
	Sunset.	765	25°	
Jan. 26.	Sunrise.	764	23°	On board *Mukhbír*.
	Noon.	763	27°	
	Sunset.	763	29°	
Jan. 27.	Sunrise.	765	22°	Ditto.
	Noon.	763	23°	
	Sunset.	763	27°	
Jan. 28.	Sunrise.	763	21°	Ditto.
	Noon.	762	24°	
	Sunset.	762	22°	
Jan. 29.	Sunrise.	763	20°	Ditto.
	Noon.	762	22°	
	Sunset.	762	23°	
Jan. 30.	Sunrise.	766	20°	Ditto.
	Noon.	764	24°	
	Sunset.	765	24°	
Jan. 31.	Sunrise.	765	22°	Ditto.
	Noon.	764	23°	
	Sunset.	764	23°	
Feb. 1.	Sunrise.	765	21°	Ditto.
	Noon.	764	22°	

OBSERVATIONS TAKEN ON BOARD SCREW-STEAMER "MUKHBIR," BY MR DAVID DUGUID (DURING OUR SECOND JOURNEY), BETWEEN FEBRUARY 18 AND MARCH 8, 1878.

Date.	Time.	Aneroid. Millimètres.	Thermometer. Centigrade.	Remarks.
Feb. 18.	7 a.m.	764	18°	Clear sky. Light breeze.
	Noon.	763	23°	Same weather.
	5 p.m.	764	23°	Clear sky. Good breeze.
Feb 19.	7 a.m.	764	20°	Clear sky. Light wind.
	Noon.	764	23°	Light wind. Few clouds in east.
	5 p.m.	764	24°	Clear sky. Light wind.
Feb. 20.	7 a.m.	765	20°	Clear sky. Light east wind.
	Noon.	765	21°	Clear sky. Light north-west wind.
	5 p.m.	764	23°	Clear sky. Light east wind.
Feb. 21.	7 a.m.	765	20°	White clouds all round. Light east wind.
	Noon.	766	23°	Few clouds to south. Light north-west wind.
Feb. 22.	7 a.m.	765	20°	Few clouds to east. Light west wind.
	Noon.	764	22°	Few clouds to east. Good north-west breeze.
	5 p.m.	764	22°	Few clouds to west. Light north wind.
Feb. 23.	7 a.m.	764	19°	Clouds to south-west. No wind.
	Noon.	765	21°	Clouds to east. Light north-west wind.
	5 p.m.	765	22°	Few clouds to east. Light north-west wind.
Feb. 24.	7 a.m.	767	19°	Clear sky. No wind.
	Noon.	768	22°	Clear sky. Light north wind.
	5 p.m.	768	24°	Same weather.
Feb. 25	7 a.m.	769	20°	Clear sky. Light east wind.
	Noon.	769	22°	Clear sky. Light west wind.
	5 p.m.	768	24°	Clear sky. No wind.
Feb. 26.	7 a.m.	766	20°	Clear sky. Light east wind.
	5 p.m.	766	20°	Same weather.
Feb. 27.	7 a.m.	762	20°	Few clouds to south. Light north-east wind.
	Noon.	762	23°	Clear sky. Light north wind.
	5 p.m.	761	25°	Clear sky. Light west wind.
Feb. 28.	5 p.m.	764	23°	Heavy clouds to west. Strong west wind.
Mar. 1.	7 a.m.	767	20°	Few clouds in south. Light north wind.
	Noon.	767	23°	Clear sky. Good north-west breeze.
	5 p.m.	765	22°	Few clouds to west. Light wind from west.
Mar. 2.	,,	765	20°	Clouds all round. Light east wind.
	Noon.	765	23°	Clouds all round. Light west wind.
	5 p.m.	764	24°	Clouds all round. Light north wind.
Mar. 3.	7 a.m.	762	20°	Few clouds to east. No wind.
	Noon.	763	22°	Few clouds to south. Good north-west breeze.
	5 p.m.	763	23°	Few clouds to north. Good west breeze.
Mar. 4.	7 a.m.	767	21°	Clear sky. Light breeze from east.
	Noon.	768	23°	Clear sky. Light breeze from west.
	5 p.m.	767	24°	Clear sky. Light breeze from north.

Date.	Time.	Aneroid. Millimètres.	Thermometer. Centigrade.	Remarks.
Mar. 5.	7 a.m.	764	20°	Clear sky. Light east wind.
	Noon.	764	22°	Clear sky. Good breeze from east.
	5 p.m.	762	25°	Light clouds all round. North-west wind.
Mar. 6.	7 a.m.	763	20°	Heavy clouds to east. Light east wind.
	Noon.	763	23°	A few clouds to east. Light west wind.
	5 p.m.	762	24°	Dark clouds all round. Strong west wind. At ten p.m. gale from west, with some flashes of lightning.
Mar. 7.	7 a.m.	766	19°	Clouds to south. Wind north.
	Noon.	767	22°	Clear sky. Good breeze from north-west.
	5 p.m.	766	24°	Clear sky. Wind north.
Mar. 8.	7 a.m.	765	19°	Clear sky. Light east wind.
	Noon.	763	23°	Clear sky. Light west wind.

OBSERVATIONS TAKEN ON BOARD SCREW-STEAMER "MUKHBIR," BY MR. DAVID DUGUID (DURING OUR WEEK IN EL-SHÁRR), BETWEEN MARCH 13 AND MARCH 19, 1878.

Date.	Time.	Aneroid. Millimètres.	Thermometer. Centigrade.	Remarks.
Mar. 13.	Noon.	762	25°	Clear sky. Good breeze. Wind west.
	3 p.m.	761	26°	Clear sky. Light breeze. Wind west.
Mar. 14.	6 a.m.	762	21°	Light clouds all over. Wind east. Light breeze.
	Noon.	764	24°	Same cloudy weather, but wind from east (?).
	3 p.m.	763	26°	Light clouds all round. Wind west and light.
Mar. 15.	6 a.m.	762	21°	A few clouds to south. Wind east and light.
	Noon.	761	26°	Light clouds all round. Moderate breeze from west.
	3 p.m.	760	27½°	Same weather.
Mar. 16.	6 a.m.	760	24°	A few clouds to south. Light east wind.
	Noon.	760	26°	Clear sky. Wind south-west. Light breeze.
	3 p.m.	759	29°	Clear sky. Wind west. Very light breeze.
Mar. 17.	6 a.m.	759	24°	Clear sky. Light breeze from east.
	Noon.	760	26°	Clear sky. Wind west. Very light breeze.
	3 p.m.	760	27°	Same weather.
Mar. 18.	6 a.m.	760	23°	Same weather, but wind west.
	Noon.	—	—	Clear sky. Wind west. Very light breeze.
Mar. 19.	6 a.m.	759	23°	Few clouds to north. Wind east, and very light.
	Noon.	758	29°	Clouds to north-west. Good breeze from west.
	3 p.m.	758	29°	Clouds all round. Wind south-west. Good breeze.

OBSERVATIONS TAKEN ON BOARD SCREW-STEAMER "SINNÁR," BY CAPTAIN NÁSIR AHMED, BETWEEN MARCH 29 AND APRIL 10, 1878.

Date.	Time.	Mercurial Barometer.	Thermometer. Fahr.	Remarks.
Mar. 29.	6 a.m.	30.7	64°	
	Noon.	30.7	76°	
	3 p.m.	30.7	76°	
Mar. 30.	6 a.m.	30·00	61°	White clouds to north-east. Wind north-east.
	Noon.	30·05	77°	
	3 p.m.	30·00	80°	Air very damp from noon to sunset. Wind west.
Mar. 31.	6 a.m.	29·9	63°	Wind north-east. Never saw barometer so low.
	Noon.	30·00	80°	Dry and fine.
	3 p.m.	29·98	80°	Damp from noon to sunset.
April 1.	6 a.m.	29·94	66°	Wind east. Fine day.
	Noon.	29·95	83°	
	3 p.m.	29·92	83°	Damp from noon to sunset.
April 2.	6 a.m.	29·90	68°	Wind north-east. Fine day.
	Noon.	30·00	80°	Damp.
	3 p.m.	29·90	81°	Red clouds at sunset.
	Gale of wind at El-Wijh from north-east, began at seven p.m. Ship under shelter. Rain for half an hour.			
April 3.	6 a.m.	30·00	69°	Wind north.
	Noon.	30·20	80°	Damp.
	3 p.m.	30·00	79°	Wind north-west at sunset.
April 4.	6 a.m.	30·00	73°	Wind north-west.
	Noon.	30·03	78°	Wind north-west all day.
	3 p.m.	30·00	77°	
	Storm on seaboard. Heavy clouds, wind, and gale all day from north-west. *Sinnár* rolling.			
April 5.	6 a.m.	29·93	66°	Wind north-west.
	Noon.	30·00	76°	Wind north-west.
	3 p.m.	30·00	75°	Fine day.
April 6.	6 a.m.	29·93	62°	Wind north.
	Noon.	30·00	74°	Wind north-west.
	3 p.m.	30·00	74°	Same weather.
April 7.	6 a.m.	29·94	64°	Wind north.
	Noon.	30·00	79°	Fine day.
	3 p.m.	30·00	76°	Wind north-west from noon to sunset. Fine weather.
April 8.	6 a.m.	30·02	61°	Wind east.
	Noon.	30·04	73°	Fine day.
	3 p.m.	30·04	78°	From noon to sunset, fine but damp.
April 9.	6 a.m.	30·04	68°	Wind east.
	Noon.	30·06	77°	
	3 p.m.	30·06	81°	Damp from noon to sunset.
April 10.	6 a.m.	30·06	64°	Wind north. Fine day. Damp and north-west wind from noon to sunset.

CAIRO.

Reaching Cairo, I found Dr. T. E. Maclean from Thebes, with good instruments. He kindly compared mine with his, and gave me the following results :—The difference between my aneroid (Casella) and his is very slight, varying generally from 0·05 to −0·10. He advises me to neglect this slight difference. The dry bulb is, on the whole, a little higher than his; and we have not sufficient observations for the wet bulb. The pocket thermometer wants correction; it reads from +1° to +2° 15′.

LIST OF OBSERVATIONS.

Date.	Time.	Negretti and Zambra's standard aneroid. No. 1140.	My Casella.	Difference for Corrections.	Casella's portable thermometer.	Difference for Corrections.	Negretti and Zambra's dry bulb. No. 39,518.	Casella's dry bulb.	Difference.	Negretti and Zambra's wet bulb.	Casella's Wet Bulb.	Difference for Corrections.
1878.												
April 28.	12.30 p.m.	No observation.	No observation.	—	91°	−1·6	89·4	90·0	−0·6	71·75	71·0	+0·75
	3 p.m.	No observation.	No observation.	—	84°	−2·1	81·9	82·5	−0·6	69·0	69·0	0·0
	6.30 p.m.	No observation.	No observation.	—	73°	−2·5	70·5	71·0	−0·5	61·0	61·0	0·0
April 29.	9 a.m.	No observation.	No observation.	—	69°	−2·4	66·6	67·0	−0·4	59·1	59·0	+0·1
	11.30 p.m.	29·796	29·850	−·054	77·5°	−2·0	75·5	76·0	−0·5	63·5	64·0	−0·5
	3 p.m.	29·755	29·752	+·003	77·5°	−1·5	76.0	76·0	0·0	62·75	62·0	+0·75
April 30.	9 a.m.	29·828	29·850	−·022	67·5°	−2·15	65·0	66·0	−1·0	59·5	60·5	−1·0
	12.30 p.m.	29·822	29·850	−·028	76°	−1·5	74·5	75·0	−0·5	63·75	63·5	+0·25
	3 p.m.	29·799	29·802	−·003	77°	−2·0	75·0	73·5	−0·5	64·0	62·5	+1·5
May 1.	9 a.m.	29·959	30·100	−·141	66·5°	−1·75	64·75	65·5	−0·75	57·5	58·0	−0·5
	12.30 p.m.	29·945	29·952	−·007	76°	−2·5	73·5	74·5	−1·0	61·5	62·0	−0·5
	3 p.m.	29·984	29·902	+·082	77·5°	−1·75	75·75	76·5	−0·75	61·75	61·5	+0·25
May 2.	9 a.m.	30·051	30·102	−·051	66°	−1·25	64·75	65·0	−0·25	58·0	58·5	−0·5
	12.30 p.m.	29·978	30·000	−·022	78°	−2·0	76·0	76·0	0·0	63·0	66·5	−2·5
	3 p.m.	29·936	29·950	−·014	78°	−1·5	76·5	No obs.	—	63·75	No obs.	—
May 3.	9 a.m.	29·961	29·952	+·009	71·5°	−1·5	70·0	No obs.	—	58·5	No obs.	—
	12.30 p.m.	29·880	29·900	−·020	83°	−2·5	80·5	81·0	−0·5	63·25	62·0	+1·25
	3 p.m.	29·820	29·850	−·030	83°	−1·1	81·9	82·5	−0·6	62·0	62·5	−0·5
May 4.	9 a.m.	29·716	29·750	−·024	71·5°	−1·25	70·25	71·0	−0·75	63·25	63·0	+0·25
	12.30 p.m.	29·679	29·700	−·021	89·5°	−1·25	87·75	88·0	−0·25	70·25	69·5	+0·75
	3.30 p.m.	29·617	29·650	−·033	89·5°	−1·0	88·5	89·0	−0·5	70·0	69·0	+1·0
May 5.	9.30 p.m.	29·586	29·600	−·014	76·5°	−1·5	75·0	No obs.	—	No obs.	No obs.	—
	12.30 p.m.	No observation.	No observation.	—	83°	−2·0	81·0	82·0	−1·0	69·75	68·5	+1·25
	3 p.m.	29·603	29·602	−·001	82°	−1·5	80·5	81·0	−0·5	69·0	67·0	+2·0
May 6.	9 a.m.	29·780	29·800	−·020	70°	−1·75	68·25	69·0	−0·75	63·0	63·0	0·0
	12.30 p.m.	29·785	29·800	−·015	77°	−2·0	75·0	76·0	−1·0	65·25	65·0	+0·25
	3 p.m.	29·778	29·800	−·022	79°	−2·0	77·0	77·5	−0·5	67·5	66·0	+1·5
May 7.	9 a.m.	29·854	29·850	+·004	67°	−2·0	65·0	66·0	−1·0	60·75	61·0	−0·25
	12.30 p.m.	29·822	29·802	−·020	80·5°	−1·5	79·0	79·0	0·0	66·0	65·0	+1·0

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